



VertiMax Raptor/Raptor EX Manual

Rev. B (6/15/2015)

Model No. _____ US Patent Application Serial No. 12/155,747

Serial No. _____

The model number and serial number of your unit can be found on the backside storage area of your Raptor unit. Write the model number and serial number in the space above.

QUESTIONS?

At the VertiMax company, we are committed to providing complete customer satisfaction. If you have questions, see HOW TO CONTACT CUSTOMER CARE on page 2 of this manual.



CAUTION

Read all precautions and instructions in this manual before using this equipment. Keep this manual for future reference.

TABLE OF CONTENTS

How To Contact Customer Care.....	3
Important Safety Precautions.....	4-6
Warning Decal Placement.....	7
Before You Begin.....	8
Raptor Models.....	9-10
Receiving Your Raptor Unit.....	11
Additional Accessories You Can Purchase.....	12-14
How To Attach Your Accessory Harnesses.....	14-20
Deploying The Raptor Unit On A Fence.....	20-33
Post Training Cord Maintenance.....	34-36
Unmounting The Raptor Unit.....	37-38
Raptor Cord & Strap Stow Procedure.....	39-43
Safety Precautions (Harness Usage vs Training Distance).....	43-45
Raptor & Raptor EX Schematics.....	45-49
Training.....	50-109

HOW TO CONTACT CUSTOMER CARE

If you have questions after reading this manual, or if you require assistance, please contact Customer Care at the phone number listed below. Please be prepared to give the following information:

- The MODEL NUMBER of the product (see the front cover of this manual for the location).
- The NAME of the product (I.E. Raptor)
- The SERIAL NUMBER of the product (see the front cover of this manual for the location).

Customer Care: 1-800-699-5867, Monday–Friday, 8 a.m.–5 p.m. Eastern
Standard Time VertiMax, Inc.

IMPORTANT SAFETY PRECAUTIONS

⚠ WARNING: To reduce the risk of serious injury to users and bystanders, read the following important safety precautions and information before utilizing the Raptor product. Before beginning this or any exercise program, consult your physician. This is especially important for persons over the age of 35 or persons with pre-existing health problems. Read all instructions before using the Raptor product and only use the product as described in this manual. VertiMax Inc. assumes no responsibility for personal injury or property damage sustained by or through the use of this product.

1. It is the responsibility of the owner to ensure that all users of the Raptor product line are adequately informed of all warnings and precautions within this manual and on Warning and Caution labels located on the Raptor unit. NEVER remove the Warning and Caution labels. If any Warning or Caution label is damaged or separates from the unit, cease using the unit immediately and contact Customer Service to have a replacement label provided to re-apply to the Raptor unit.
2. You should consult a physician before you start an exercise program or training routine. Stop using any VertiMax product if you feel faint, experience pain or tightness in your chest, or become short of breath. Contact your physician before resuming use of any VertiMax Raptor or V Series product.
3. VertiMax Raptor Products are intended primarily for users 10 years of age or older. Special “Youth Cord” configurations (3/16th inch diameter cords) providing lower training resistances are required if parents of users between the ages of 6 and 9 desire to have their children utilize the VertiMax Raptor product under adult supervision. “Youth Cord” configurations can be requested at the time of purchase. Users over the age of 9 should utilize lower resistance bands contained in the “Youth Configuration” if they have difficulty training with the resistance provided by the “Standard Band” configurations utilizing ¼ inch or 5/16 inch diameter bands. No one under the age of 18 should use any VertiMax product without first consulting a parent or guardian. Children and teenagers must have constant adult supervision while utilizing the VertiMax Raptor product.
4. When used outdoors, Raptor units should only be attached to chain link fences with appropriate structural integrity. Each vertical fence posts support should be able to support a minimum of a 150 pound horizontal load applied to the vertical support four feet above ground level. Do not attach any part of a Raptor unit more than 6 feet high on a chain link fence and never attempt to attach Raptor units to wooden fences or any other fence made out of a material other than standard metal chain link mesh.
5. When attaching a Raptor unit to a chain link fence, place the unit horizontally or vertically over a vertical support post. Adjust the unit so it's centerline lies directly over the vertical support fence post. Such positioning will optimize support for the unit during use. Placing the unit away from a vertical fence post could lead to structural damage to the fence, causing the unit or fence to shift suddenly. Such movement could potentially cause severe injury to the user or a bystander and/or damage to the Raptor. Never place more than two Raptor units on a chain link fence vertical support post. Vertical support posts are typically placed 10 feet apart. Therefore when placed properly, there should never be more than two Raptor units attached to any 10 foot span of chain link fence unless the fence support structure is a custom support structure specifically for supporting the Raptor units provided by VertiMax Inc.

IMPORTANT SAFETY PRECAUTIONS (Continued)

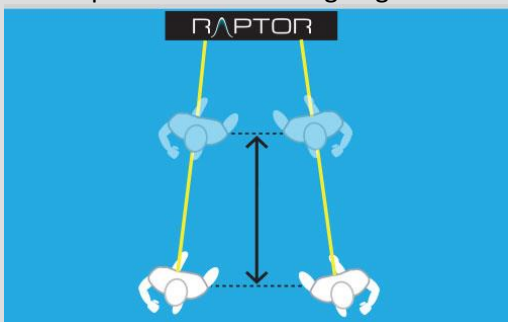


9. In the event that a cord comes loose from the user during use, it will retract back into the Raptor unit at potentially very high velocities, potentially causing serious and/or life-threatening injuries to bystanders. No person should stand between the user and the Raptor at any time during its use or when cord maintenance procedures are being conducted. Non-users (bystanders) should also stand no less than 8 feet away from any part of the Raptor unit including protracted bands and adjacent Raptor units at all times during use. Reference the Warning label below which is placed on the top, right side of each Raptor unit

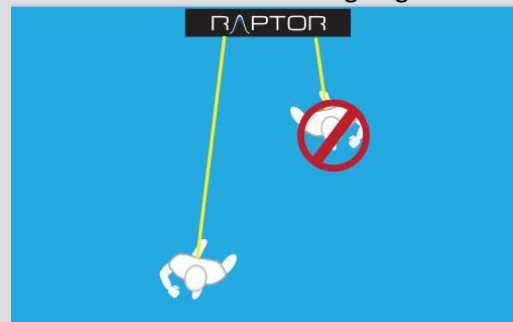


10. When two athletes are attached to the same Raptor unit or multiple athletes are using multiple Raptor units attached to a support surface spaced appropriately, the athletes must move in tandem so that during exercise, all athletes are approximately the same distance from their respective Raptor units that they are attached to. This will significantly decrease the probability of injury in the case of an accidental cord detachment. The following two diagrams illustrate how athletes should and should not move together when training with the same Raptor unit.

Proper Tandem Training Alignment



Incorrect Tandem Training Alignment



IMPORTANT SAFETY PRECAUTIONS (Continued)



11. Prior to each use of the Raptor, the user should inspect each component of the Raptor and associated harnesses used to attach resistance bands to the user to ensure proper functioning and that there is no damage (beyond normal wear and tear). Any damaged Raptor components including resistance band attachment harnesses could cause the unit to fail during use and result in serious injury to the user or bystanders. If any fraying of nylon on attachment harnesses is observed or fraying of the nylon braiding around the elastic bands is observed, the harnesses and unit cannot be used until it is repaired, otherwise injury to users or bystanders could occur.
12. When detaching any Raptor cord, always have the user first position themselves as close to the vertical support structure and detachable Raptor pulley assemblies as possible (within 1 foot) so resistance band tension is minimal. Once positioned properly to minimize cord tension, detach selected resistance bands by firmly gripping the end of the cord attached to the athlete, release the cord from the attachment harness and hold it firmly until it retracts completely into the movable pulley assembly. NEVER release the cord before it fully retracts into the Raptor's movable pulley assembly, otherwise serious injury to the user or bystanders could result including possible damage to the unit. All bands when detached from a user should be held until they are fully retracted into the VertiMax Raptor unit or until the person holding the band no longer feels any tension on the band.
13. When training more than 30 feet from the Raptor unit, only attachment harnesses that cannot accidentally open up can be used to help avoid accidental cord detachment. The two harness assemblies that can be used more than 30 feet from the Raptor unit are:
 - a. The continuous 360 degree belt that must be slipped over the body and
 - b. The hip flexor harnesses in conjunction with the waist harness with Raptor cord connections only attaching to the hip flexor harnesses.

Both harness assemblies described above cannot accidentally come off the user unless there is a major harness failure which is extremely rare.
14. When conducting Option 1 of the Cord Maintenance Procedure, the user must always use the 360 Degree belt attaching a single cord to each "D" ring on the belt. As the user walks back and extracts the cords from the Raptor unit to inspect for twisting, use of the 360 Degree belt will minimize the possibility of an accidental cord detachment.
15. ONLY use means directly provided by the manufacturer to attach the Raptor to support surfaces and to attach cords to the User.

SAVE THESE INSTRUCTIONS

WARNING DECAL PLACEMENT

The Warning decals shown below have been placed on the VertiMax Raptor units positioned on the top side of each unit as shown below. If a decal is missing, or if it is not legible, see **HOW TO CONTACT CUSTOMER CARE** on page 3 of this manual and order a free replacement decal. Note: The decals may not be shown at actual size.



PRECAUTIONS LABEL

⚠️ SERIOUS INJURY CAN OCCUR UTILIZING THIS EQUIPMENT. FOLLOW THESE PRECAUTIONS TO AVOID INJURY.

Read and follow all warnings and instructions on this label and in the product User's Manual and obtain proper instruction prior to use.

- Obtain a medical exam before beginning an exercise program. Cease exercise if you feel faint or dizzy.
- Inspect the Raptor unit and accessories before use. Do not use if any part of the machine, attachment straps, resistance bands or attachment harnesses appear damaged. Immediately contact the manufacturer for repair.
- BY-STANDERS MUST ALWAYS STAND A MINIMUM OF 8 FEET AWAY from any part of the Raptor including extended resistance bands while the Raptor is connected to the User. If connected to two Users, the Users must move simultaneously remaining equal distance from the Raptor at all times. Not adhering to these requirements may result in serious life threatening injuries in the case of accidental cord detachment.
- ONLY use means directly provided by the manufacturer to attach the Raptor to support surfaces and to attach cords to the User. Refer to the Operating Manual for appropriate mounting surfaces and methods before attaching the Raptor unit to any support surface.
- Raptor use by children and teenagers must be supervised by a knowledgeable adult.
- Use this equipment for its intended use only. Do not remove this label. Call 800-699-5867 to REPLACE IF DAMAGED.

U.S. PATENT PENDING: App. Serial # 12/155,747

PROXIMITY WARNING LABEL



BEFORE YOU BEGIN

Congratulations for selecting VertiMax's revolutionary Raptor product. The Raptor offers an impressive array of features to make your sports performance, conditioning and rehab workouts more effective and enjoyable.

For your benefit, read this manual carefully before you use any Raptor model. If you have questions after reading this manual, see HOW TO CONTACT CUSTOMER CARE on page 3 of this manual. To help us assist you, please note the model and serial number of the Raptor unit before calling. The serial number can be found on a decal attached to the back side of the Raptor unit on the right hand side of the cord storage area (see photo below).



Before reading further, please familiarize yourself with the V8 series primary parts that are labeled in the following drawings.

RAPTOR MODELS (THE RAPTOR & RAPTOR EX)

There are two types of Raptor models which provide mid-range training distances (approx. 20 yards) and long range distances (approx. 45 yards). The mid-range unit called the **Raptor** provides two resistance bands with each band able to provide resistance over an approximate 20 yard range. The long range unit called the **Raptor EX** provides a single resistance band allowing athletes to train with resistance out to distances of 45 yards from the unit. In summary;

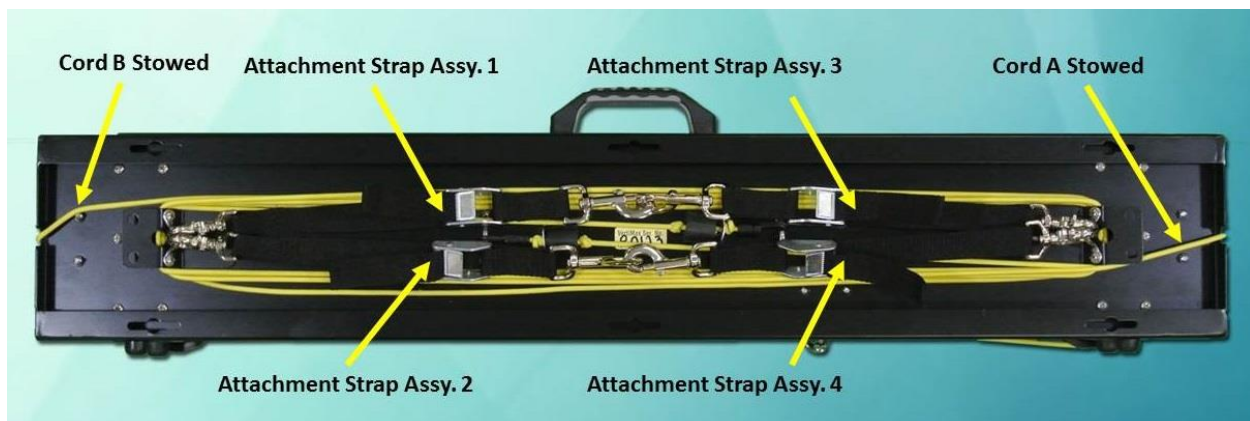
Raptor Unit: Dual Band, train up to two athletes simultaneously, each resistance band extends out to approximately 20 yards.

Raptor EX Unit: Single Band, trains one athlete, resistance band extends out to approximately 45 yards.

Raptor Unit Front View



Raptor Unit Rear View Stowed Configuration

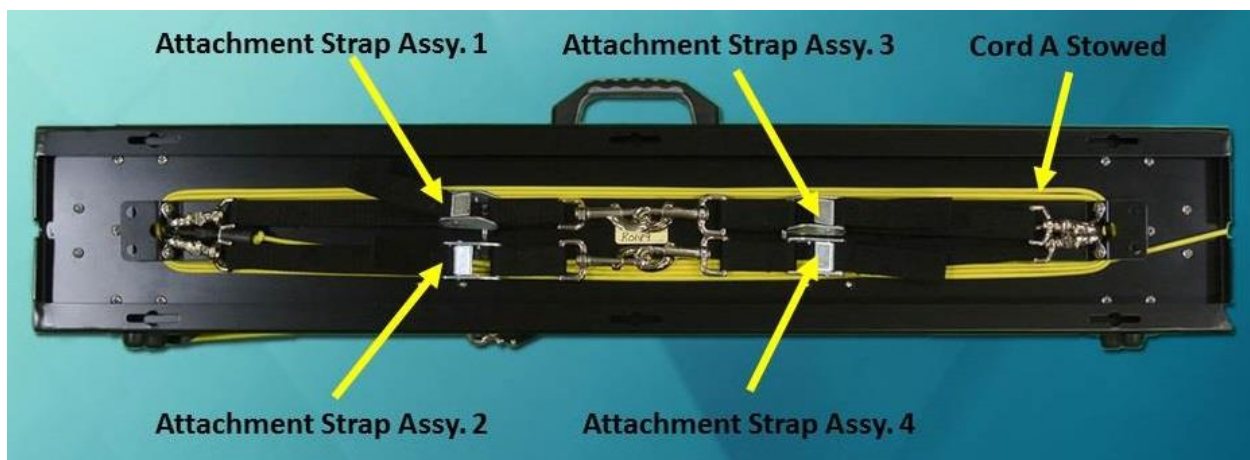


VERTIMAX RAPTOR USERS MANUAL

Raptor EX Unit Front View



Raptor EX Unit Rear View Stowed Configuration



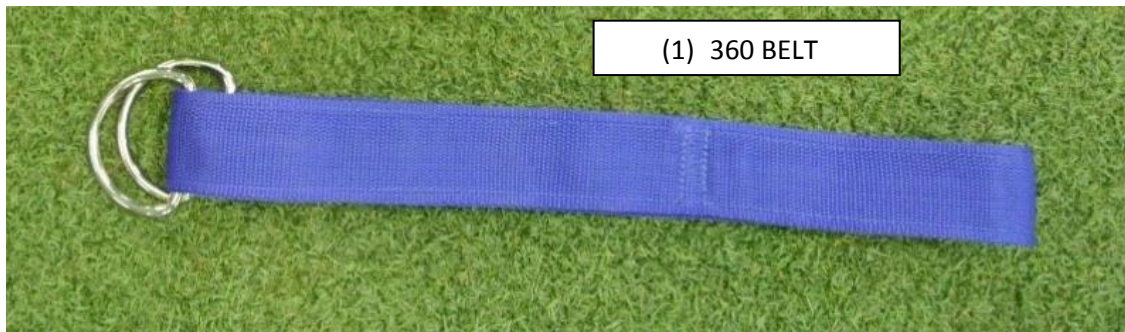
RECEIVING YOUR VERTIMAX RAPTOR UNIT

The following instructions will explicitly refer to the dual band Raptor Unit. All instructions will also apply to the Raptor EX unit with the exception being the reader should note that the Raptor EX unit only has a single band. Therefore if you own a Raptor EX unit, any references and instructions related to the two band Raptor system should be noted and modified for the one band Raptor EX unit. Upon receiving and unpacking your VertiMax Raptor Unit you should note the following:

- i. The Raptor unit has arrived in the stowed configuration with resistance bands coiled in the rear of the unit with the four fence attachment straps connected across the rear of the unit. Reference photo below.



- b) Each Raptor unit comes with a 360 Degree training belt (item (1) below). Additional accessory items can be purchased including: (2) A medium Waist belt with cam buckle (fits 30" to 42" waist), (3) Ankle Strap set (one size fits all), (4) Hand Grip set, (5) Hip Flexor Harness set (standard size fits 4'7" to 6'2" athletes) and (6) Left and right Palm strap set (one size fits all).





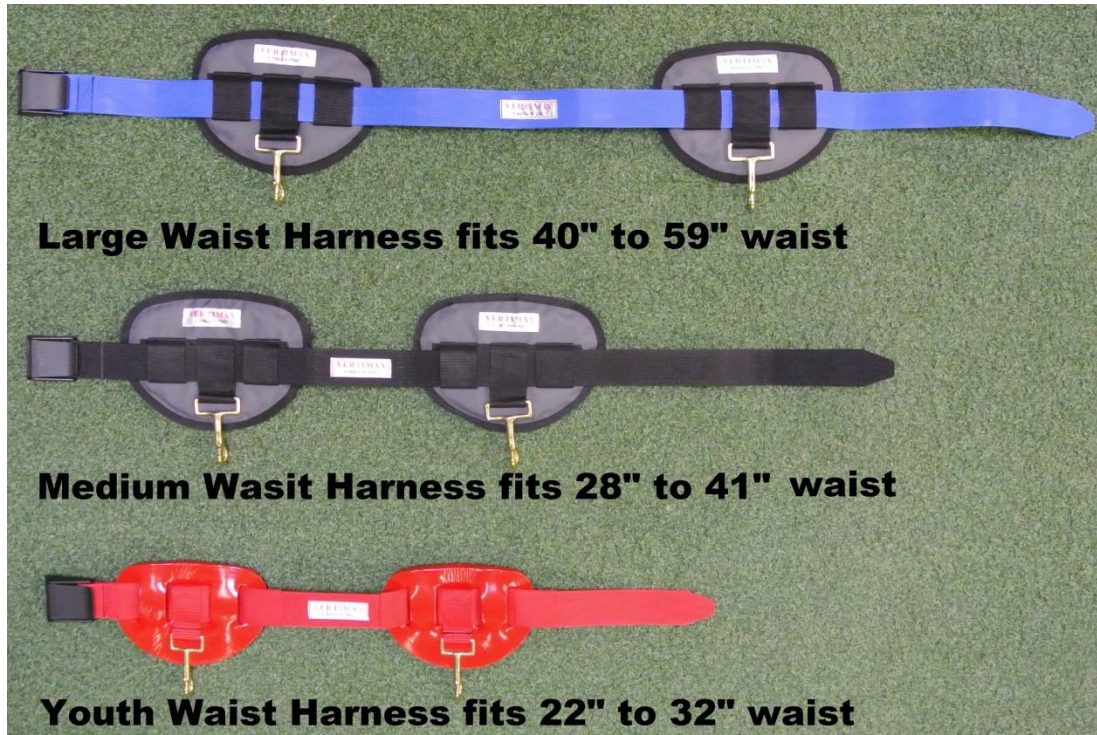
Additional accessory items (purchased separately): (2) A medium Waist belt with cam buckle (fits 30" to 42" waist), (3) Ankle Strap set (one size fits all), (4) Hand Grip set, (5) Hip Flexor Harness set (standard size fits 4'7" to 6'2" athletes) and (6) Left and right Palm strap set (one size fits all).

ADDITIONAL ACCESSORIES YOU CAN PURCHASE

It is important to note that the cam buckle waist belt, hip flexor harness and 360 degree waist belt come in additional sizes. **WARNING: The combined Waist Harness and Hip Flexor and 360 degree belt are the only accessories that may be used when training in excess of 20 feet from the Raptor.**

Waist Belts with Cam Buckle and Waist Pads – The following photo shows the three sizes of waist harnesses that are available to suit athletes from youth to large adults. Note that unless requested otherwise when ordering, the Medium Waist Harness comes standard with each Raptor purchase.

VERTIMAX RAPTOR USERS MANUAL



Hip Flexor Harness Pair (Left & Right) – The Hip Flexor harness when attached to a waist harness allows athletes to attach resistance bands behind the knees so that when running they can load both the Drive Phase and Recovery Phases of running when the foot is both in contact with the ground and airborne. Since two bands at a minimum are required to attach to the Hip Flexor harnesses (one band per harness), if you own a Raptor EX which is a one band system, you will have to purchase a second Raptor EX of the same band diameter to provide a second band so that two training bands will be available to utilize the Hip Flexor harnesses appropriately. The Hip Flexor harnesses are adjustable to compensate for height, with the standard size harness capable of fitting athletes from 4'7" to 6'2" tall. The complete size selection for Hip flexor Harnesses is shown below.



VERTIMAX RAPTOR USERS MANUAL

360 Degree Belts – Raptor units come with a Medium size 360 Degree belt (fits hip sizes less than 43"). The 360 degree belt allows athletes to spin 360 degrees when running with resistance bands attached to the waist enabling more dynamic foot movement when training. The 360 belt has no buckle and does not open up and thus cannot accidentally detach from the user. This belt is used for resistance band attachments to the waist whenever an athlete wants to train more than 30 feet away from the Raptor. There are two available sizes of the 360 Degree belt which are shown below.



HOW TO ATTACH YOUR ACCESSORY HARNESSES

The following section provides instructions on how to put on and utilize five of the six types of harness accessories that come with the Raptor unit.

Attachment Procedure - Waist Belts with Cam Buckle and waist pads (Youth, Medium & Large)

To put the waist harness with cam buckle on, place the open belt around your waist and grip both ends of the belt with one hand and adjust the two hip pads so they are squarely aligned with your hips. Then thread the tip of the belt through the cam buckle (1), pull the belt tight (2), close the cam buckle (3) and then tuck the excess portion of the belt into one of the side loops (4). **WARNING:** Tucking the excess part of the belt away is important because if it's left flapping in front of you while training your arm can catch the belt tip and cause the cam buckle to inadvertently open and release the belt unexpectedly while training. (5) Finished.



(1) Thread belt tip through cam.



(2) Tighten belt securely

VERTIMAX RAPTOR USERS MANUAL



(3) Close cam.



(4) Stow belt tip



(5) Finished.

CAUTION! The waist harness with cam buckle cannot be used more than 30 feet away from the Raptor unless the hip flexor attachments are utilized and attached properly to the waist harness pads. In the case of an accidental cam buckle release, the hip flexor harnesses around the thighs will prohibit the Raptor's elastic resistance band from fully detaching from the trainee.

Important Note! If you purchased a waist belt after January 30, 2015 you will have an additional Velcro safety strap behind the cam buckle which is used to secure the cam in the closed position prohibiting accidental release and opening of the cam. After closing the cam buckle and completing Step 5 above use the steps 6 and 7 below to secure the cam lever with the Velcro strap attached behind the cam buckle.



(6) Thread Velcro step through loop.



(7) Fold strap back on itself & press Velcro



Secured Cam

VERTIMAX RAPTOR USERS MANUAL

Attachment Procedure – Hip Flexor Harness (Standard, Medium & Large)

The Hip Flexor Harness is always used in conjunction with the Waist Belt with Cam Buckle to support the Hip Flexor Harness. Referencing the photographs on the next page, with the Waist belt firmly secure to the waist as shown in photo (5) above the user will slip their right foot through the Hip Flexor labeled “Right” (6) and then pull the Hip Flexor Harness up the leg (7). The silver ringlet at the top of the Hip Flexor harness is then fastened to the spring clip on the right hip pad on the waist belt (8). Then the adjustment strap will be pulled (to shorten) or released (to lengthen) the Hip Flexor Harness so the strap across the thigh rests right above the knee cap (9). Once the right Hip Flexor Harness is attached repeat these steps to attach the left Hip Flexor Harness.



(6) Step into Hip Flexor Harness.



(7) Pull Harness up leg.



(8) Clip Hip Flexor to Waist Pad.



(9) Adjust height so thigh strap is above knee cap.

Attachment Procedure - 360 Degree Closed Loop Waist Belt

Referencing Photos 10 and 11, the 360 Degree Waist belt is a closed loop belt with no opening in the belt. Since there is no opening the belt cannot accidentally detach while training and this belt must be used whenever training more than 30 feet from Raptor units. To put on the belt simply step into the loop (10) and pull the belt over the hips (11).

USER NOTE! When attaching Raptor resistance bands to the waist and performing drills more than 30 feet away from Raptor units, if the trainee chooses not to use the waist harness with cam buckle with hip flexor harnesses attached, they must use the 360 waist belt. Since the 360 degree belt is a

VERTIMAX RAPTOR USERS MANUAL

continuous belt and does not open up, it cannot accidentally come off the user when training causing an accidental cord detachment.



(10) Step into belt.



(11) Pull belt over hips

Attachment Procedure - Palm Straps (one size fits all)

Photos (12) through (21) below show how to attach the Right and Left Palm Strap respectively so Raptor resistance bands can be attached to the hands to train and strengthen arm and hand movements.



(12) Thumb between label & Velcro



(13) Bring Velcro strap underneath wrist

VERTIMAX RAPTOR USERS MANUAL



(14) Wrap strap over wrist & connect Velcro



(15) Press Velcro together



(16) Right Palm Strap on - ready to connect resistance band.



(17) Thumb between label & Velcro



(18) Bring Velcro strap underneath wrist

VERTIMAX RAPTOR USERS MANUAL



(19) Wrap strap over wrist & connect Velcro



(20) Press Velcro together



(21) Left Palm Strap on - ready to connect resistance band.

CAUTION! The palm strap harness set cannot be used more than 30 feet away from the Raptor unit.

VERTIMAX RAPTOR USERS MANUAL

Ankle Strap Attachment Procedure - (One size fits all)

The ankle straps should not be used more than 30 feet from the Raptor system since they only have a Velcro overlap to secure the ankle strap to the ankle. To attach the ankle strap to the ankle simply thread the end of the strap through the “D” ring (22) and pull the strap securely and join the two loop and hook Velcro layers together and press firmly (23).



(22) Thread strap through “D” ring.



(23) Fasten Velcro firmly

CAUTION! The ankle harness set cannot be used more than 30 feet away from the Raptor unit since there is no safety lock to prevent accidental detachment in the case that the Velcro material separates.

DEPLOYING THE RAPTOR UNIT ON A FENCE

Before training can commence with a Raptor unit, training supervisors and/or trainees must read and comprehend all product warnings and instructions on pages 4-6 of the Vertimax Raptor User’s Manual. Once product warnings and usage instructions contained within this manual are understood by training instructors and/or users the three step process below to secure the Raptor to a fence can begin.

1. Locating a suitable chain link fence structure,
2. Un-stowing the Raptor unit and
3. Installing the Raptor unit on the fence with sufficient open training area

Note: If you purchase a Wall Mount Kit you must follow the installation instructions the come with the kit very carefully to make sure the Raptor Wall Mount is securely fastened to a wall before attaching the Raptor unit to the mount.

Step 1: Locating a suitable chain link fence structure to support the Raptor unit

VERTIMAX RAPTOR USERS MANUAL

WARNING - When used outdoors, Raptor units should only be attached to chain link fences with appropriate structural integrity. Each vertical fence post support should be able to support a minimum of a 150 pound horizontal load applied to the vertical support four feet above ground level. A strong adult male in excess of 180 pounds should not be able to see more than 1/8" flex in a suitable vertical metal support when grabbed at waist level and pushed and pulled on with maximum force. Raptor units must be attached within two feet of a metal vertical support post and no more than two Raptors can be attached over or within two feet of a vertical support post (maximum two Raptors per vertical support post). Do not attach any part of a Raptor unit more than 6 feet high on a chain link fence and never attempt to attach Raptor units to wooden fences or any other fence made out of a material other than standard metal chain link mesh. Make sure there is suitable, level space in front of the fence to conduct the desired training program. There should not be any obstructions the athlete can run into or trip over within training range of the particular Raptor unit purchased. Take special care to verify the training area consists of a quality flat training surface with no irregularities that can cause the athlete to trip and injure their legs in any way.

Step 2: Un-stowing the Raptor unit

Your Raptor unit will arrive in the stowed position shown below.



Un-Stow Procedure (Phase 1) – Remove the four attachment straps 1-4 used to secure the Raptor unit to a fence.



Strap removal is accomplished by depressing the cam lever on each strap (a) and elongating each strap to its maximum length and then releasing the trigger snap at the tail end of each strap (b) followed by releasing the spring snaps joined at the center of the unit.

VERTIMAX RAPTOR USERS MANUAL



(a) Depress cam and elongate straps



(b) Open trigger snaps to release straps

Upon completion of Phase 1 all four straps should be detached from the rear of the Raptor unit.



Un-Stow Procedure (Phase 2) – Attach the four fence support straps to each corner of the Raptor unit. This is accomplished by turning the unit over so the front side of the unit is facing up and placing the four straps near each of the four corners of the Raptor unit (d). Attach the trigger snap of each of the four support straps to each saddle strap located each of the four corners of the unit (e). After attaching the four straps the unit should look like (f).

VERTIMAX RAPTOR USERS MANUAL



(d)



(e)



(f)

Un-Stow Procedure (Phase 3) – During this phase of the Un-Stow procedure we are going to release and uncoil both Raptor resistance bands from their storage panel on the rear side of the raptor unit. After connecting the four attachment straps in Phase 2 we flip the unit over again so the front side is facing downward (g). Each resistance band has a hook installed on the tail end which has to be unhooked from a saddle strap or wrapping flange with hole (h) and then unwound (i). Completely unwind the cord and lay the released cord on the ground adjacent to the unit (j). Repeat this procedure with the second cord so after both cords are released the unit appears as photo (k) shows.

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(g)



(h)



(i)



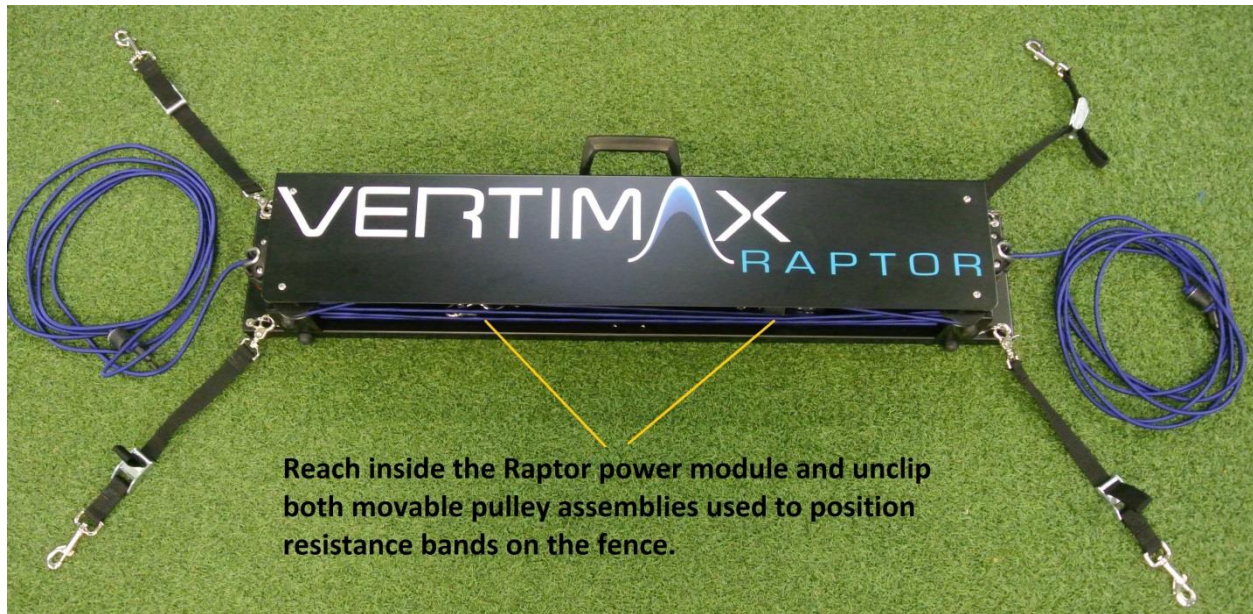
(j)



(k) Phase 3 Cord Release Procedure Completed

VERTIMAX RAPTOR USERS MANUAL

Un-Stow Movable Pulleys (Phase 4) – At the completion of the Phase 3 the Raptor unit, cords and connected fence attachment straps should appear as in photo (l) below. The next step is to release the movable pulleys stowed inside the Raptor power module.



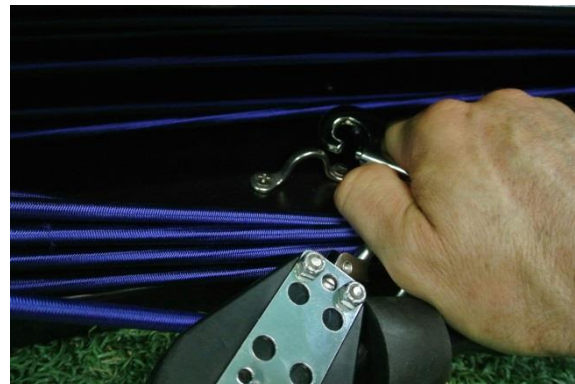
Reach inside the Raptor power module and unclip both movable pulley assemblies used to position resistance bands on the fence.

(l)

With one hand reach inside the module and grab the first set of resistance bands you encounter and pull the bands downward towards the ground to expose the one of the two movable pulley systems (m). With the opposite hand grab the spring clip and retract the locking pin with the sliding thumb knob and release the pulley assembly from the saddle strap (n). Repeat for the second movable pulley assembly.



(m) Expose Spring Clip



(n) Release Spring Clip

Once both movable pulley systems have been released from inside the power module and extracted from the Raptor unit the complete unit assembly should appear as shown in photo (o) below.

VERTIMAX RAPTOR USERS MANUAL



(o)

The Raptor unit is now ready to install on an appropriate chain link fence structure.

Fence Attachment Procedure (Phase 5) – Lift the Raptor unit up with the handle grip in one hand and the coiled resistance bands in the other. Make sure the front of the unit with logo is against your body (p).



(p)

Locate a vertical support structure on the fence and center yourself in front of the vertical support structure (q), drop the coiled resistance bands and position the handle grip at any vertical height

VERTIMAX RAPTOR USERS MANUAL

between waist level and chest level. Grab either of the two top attachment straps 1 or 2 and clip the strap onto the chain link fence at about a 45 degree angle relative to the unit when positioned level in the horizontal position (r).



(q) Position yourself in front of vertical support



(r) Clip first of 2 upper straps to fence

Once the first strap is attached to the fence let the Raptor unit hang vertically and grab the opposing strap (1 or 2) on the top side of the unit (s) and swing the unit into the horizontal position. Level the unit and attach the second strap at a 45 degree angle (s1).



(s) Let Raptor hang & grab 2nd strap



(s1) Connect 2nd strap at 45 degree angle

After both straps 1 and 2 are attached pull the looped portion of each attachment strap through the spring loaded metal cam to fine tune the leveling of the unit (t). After fine tuning the level of the unit with adjustment straps 1 and 2 the unit should appear as photo (u) indicates with adjustment straps 3 and 4 hanging.

VERTIMAX RAPTOR USERS MANUAL



(t) Level the unit using the top 2 adjustment straps



(u) Straps 1 & 2 secured

Next attach adjustment straps 3 and 4 to the fence using the spring clips at 45 degree angles and then tighten both straps by pulling the looped portion of the strap through the spring loaded cam (v). After all four straps are attached to the fence pull the movable pulley assemblies out from underneath the power module (v1) and then disconnect the two movable pulley assemblies by unlatching the spring clips holding them together (v2). The Raptor should now appear as photo (v3) shows.



(v) Attach straps 3 & 4 at 45 degree angles



(v1) Pull out movable pulley assemblies

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(v2) Detach movable pulley assemblies from each other.



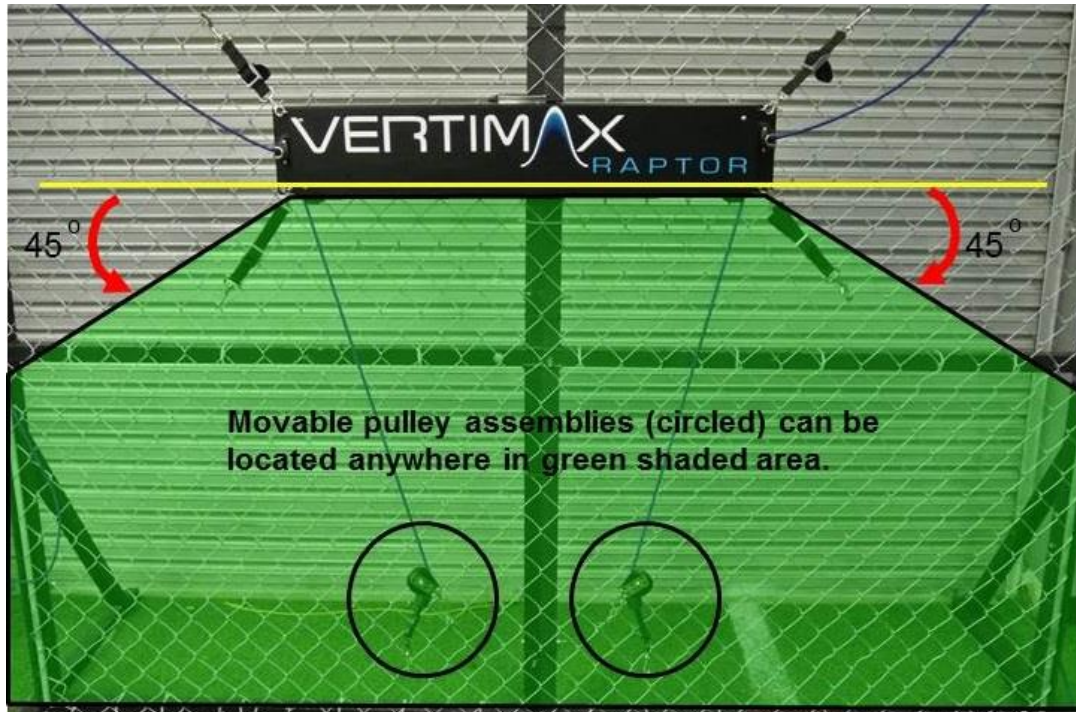
(v3) Movable pulleys ready to be attached to a desired location on fence within restricted range.

IMPORTANT POSITIONING WARNING FOR MOVABLE PULLEY ASSEMBLIES – The movable pulley assemblies can be placed at many positions below the Raptor unit when it is positioned horizontally to control the direction of resistance applied to the athlete. This is accomplished by simply clipping the movable pulley assemblies to a desired location on the fence below the unit (see adjacent photo). However, there are placement restrictions that must be strictly adhered to or the resistance bands will be damaged. These restrictions are detailed in the next section.



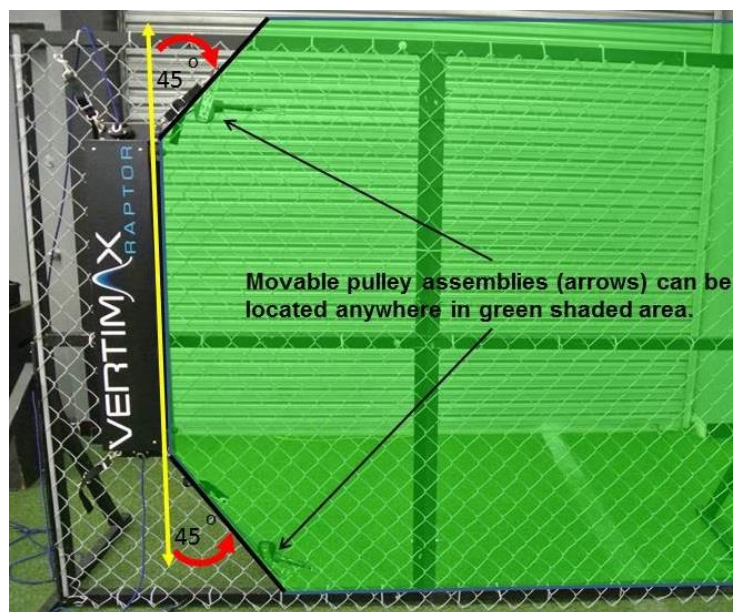
Referencing the following photo (w), the movable pulley assemblies can be placed anywhere in the opaque green shaded area below and to the lower left and right of the unit. Two imaginary lines drawn at 45 degree downward angles from a horizontal line drawn between exit pulleys on the Raptor (yellow line) defines the maximum height pulley attachments can be placed on the fence to the left and right of the Raptor unit.

VERTIMAX RAPTOR USERS MANUAL



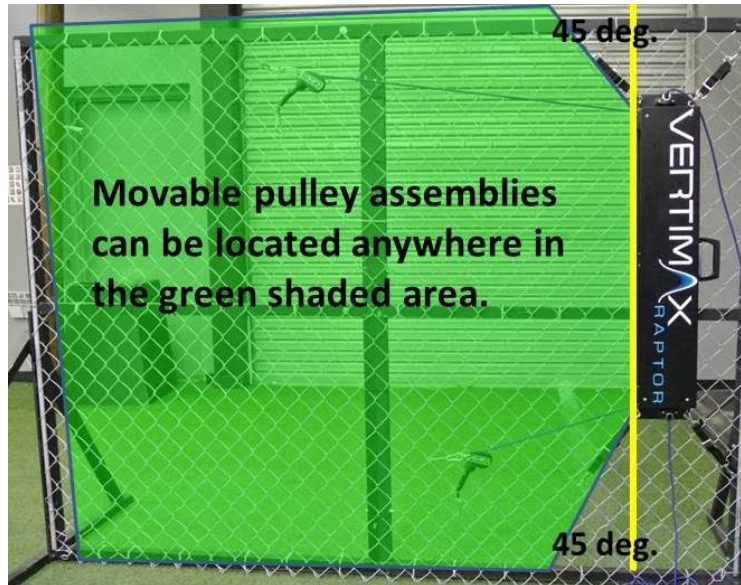
(w)

Likewise if the Raptor unit is fixed to a fence in the vertical position the attachment area that the movable pulleys must be restricted to are represented by the opaque green shaded areas in the following photos (A1) and (A2) which show the Raptor mounted with exit pulleys facing inward left and inward right respectively.



(A1) Vertical Left Placement - showing valid placement points for movable pulleys

VERTIMAX RAPTOR USERS MANUAL



(A2) Vertical Right Placement - showing valid placement points for movable pulleys

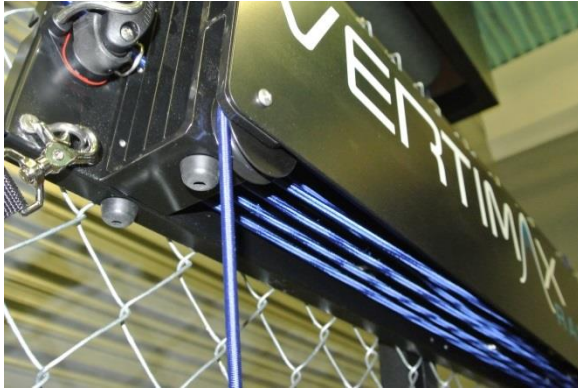
Movable Pulley Placement and Alignment Check (Phase 5) – Photo (B1) below shows a common placement of the two movable pulley systems (black circles) when the Raptor unit is attached to a fence in the horizontal position. After positions for the movable pulleys have been selected and the pulleys have been fastened to the fence using the spring clips it is important to verify proper band alignment where the elastic bands enter the Raptor power module through the exit pulleys. The exit pulleys are highlighted in photo (B1) by the yellow circles.



(B1)

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It is critical that when both resistance bands are attached to an athlete or athletes and they are being extracted or retracted from the Raptor unit that both bands remain parallel with the left and right exit pulleys (B2) and (B3) shown in the photos below.



(B2) Left Exit Pulley



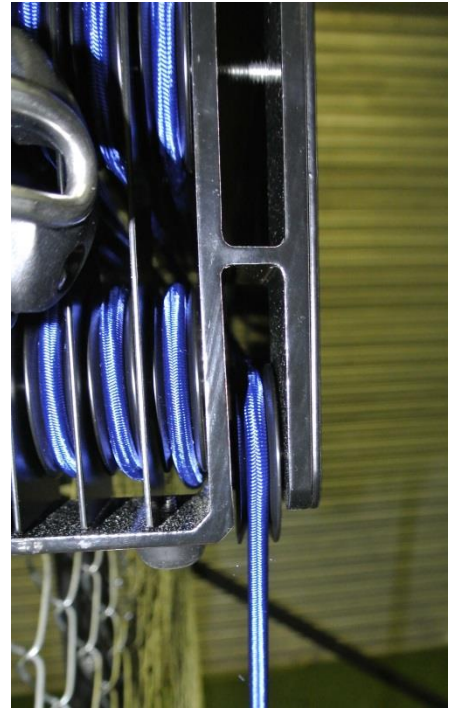
(B3) Right Exit Pulley

After each movable pulley assembly is fixed on the fence in the desired location, extract the resistance bands out of the left and right sides of the Raptor unit until the slack cord is taken up and lock the cords in each of the cam cleats. Then grab each cord (one at a time) at the end that attaches to the athlete and pull it away from the fence. While the cord end that attaches to the athlete is pulled away from the fence focus on the relationship between the cord and pulley groove in the area with the yellow circle. Referencing photo (B4), make sure the cord leaving the unit is roughly parallel with the groove of the last pulley it touches as it leaves the Raptor system.



B4 – Cord/Pulley Alignment Test

The resistance bands should leave the exit pulley as parallel as possible with the groove of the exit pulley which the resistance band lies (see photo B4). Referencing photos (C1) and (C2) below is an example of what you **do not want to see**. Photos (C1) and (C2) show the resistance bands leaving the exit pulley at sharp angles away from and towards the fence respectively. This misalignment will occur if the portion of the fence the movable pulley is attached to flexes outward or inward. If you see the cord leaving either exit pulley as shown in (C1) or (C2) do not use the system in the current setup. You must either adjust the length of the spring pin shackle on the moveable pulley or find a fence that does not flex when a load is applied to the resistance bands.



B4 - Proper Cord Exit Alignment



(C1) Improper Alignment fence flexes outward



(C2) Improper Alignment fence flexes inward

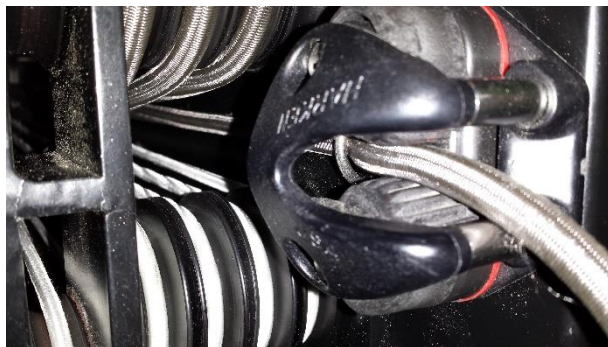
Once proper cord alignment in both exit pulleys is verified while the cord is being pulled away from the fence (reference photo “B4 - Proper Cord Exit Alignment”) the Raptor training system is ready to be utilized!

POST TRAINING CORD MAINTENANCE

After each training session is completed or approximately 1 hour of continuous usage has been implemented, the cord maintenance procedure must be conducted by the user to extend the life of the resistance bands. During use of the Raptor system, sometimes the elastic cords after many extractions and retractions will show a slight twisting of the cord which is easily visible with the naked eye. After each use one of two procedures should be performed to remove any twisting that is visible in the cord.

Cord Maintenance Procedure Option 1 (Attachment End Extraction & Untwist)

After training is completed the user will un-cleat both resistance bands from the cam cleats on both ends of the raptor unit. The two photos below show the difference between cord and cams in the cleated position and un-cleated position.



Cord in cleated position.

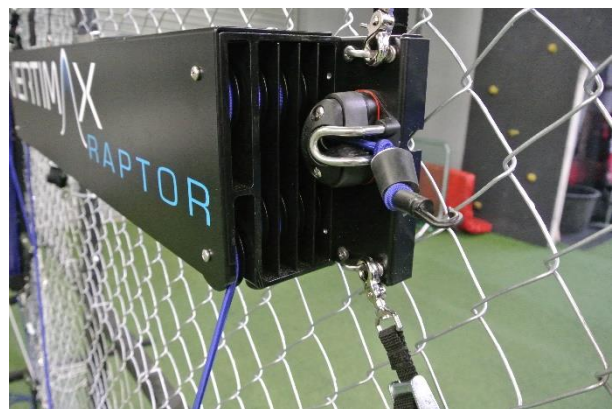


Cord in un-cleated position.

Once both cords have been un-cleated the user will step into a 360 degree belt and attach the training end of each resistance band to the belt's "D" rings. Make sure only one band is attached to each "D" ring as shown in photo (A1). Then walk backwards approximately 50 to 60 feet. As you walk backwards extracting both cords from the Raptor you will see the distal cord ends being drawing into the Raptor through the cam cleats (which are unlocked) until cord ends on both sides of the Raptor unit wedge into the open cam cleat (A2).



A1 – Attach each cord to a "D" ring.



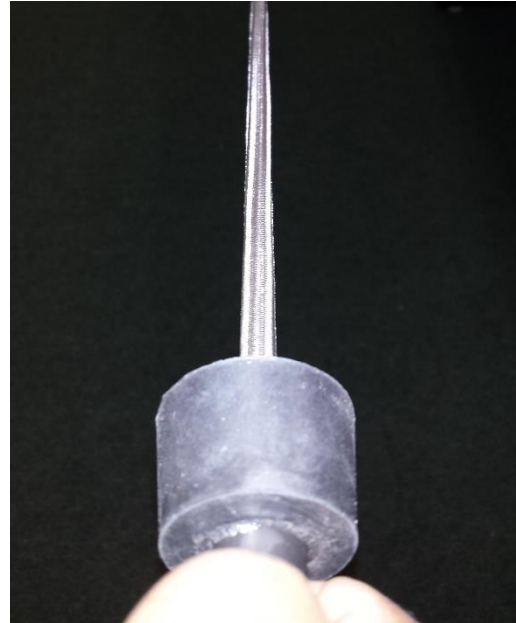
A2 – Distal cord end gets pulled to cam on unit

VERTIMAX RAPTOR USERS MANUAL

As the User walks back and nears the 50 to 60 foot separation distance from the Raptor, they will look down the bands towards the Raptor unit to see if the bands have any twists in them. Photo A3 below shows what the elastic bands will look like if they are twisted. If either cord is twisted simply grab the rubber stopper on the twisted cord with your finger tips and spin the stopper/cord in the opposite direction of the twists until the twist is eliminated. Photo A4 shows what the elastic band looks like when the twists are removed compared to Photo A3.



A3 – Clockwise twist in cord visible.



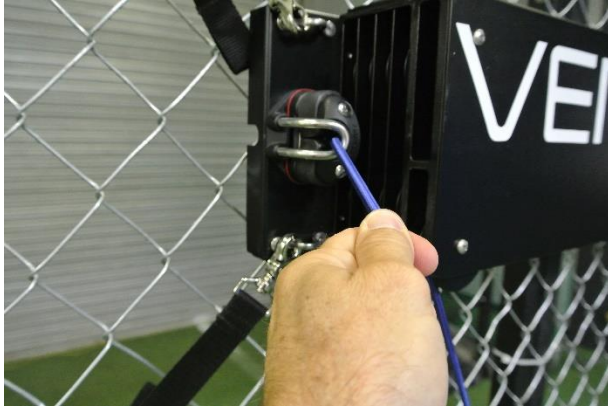
A4 – Spinning cord clockwise removes twist.

Once any twisting effects have been removed from the cords simply walk back to the Raptor unit allowing the cords to automatically retract into the unit and start the Stow procedure to remove the unit from its mounting surface and pack it up for travel.

Cord Maintenance Procedure Option 2 (Distal End Extraction & Untwist)

The second cord maintenance procedure option extracts the opposite end of the cords (Distal end) from the Raptor unit which emerges from the cam cleat end as opposed to the end that attaches to the athlete as previously described in Option 1. After training is completed the user will un-cleat both resistance bands from the cam cleats on both ends of the raptor unit (Photo A5) and then individually extract each band (Photo A6) until approximately 30 feet of elastic band is protruding from the cam cleat. As you walk back extracting the cord from the cam cleat you will note the User end of the cord being drawn into the Raptor unit.

VERTIMAX RAPTOR USERS MANUAL



A5 – Release Cord from Cam Cleat



A6 – Walk back 30 feet extracting cord

Once you have extracted 30-40 feet of elastic cord hold the cord near eye level and observe the nylon braiding to see if there is any twisting in the cord. If twisting is visible rotate the cord in the opposite direction with your fingertips (Photo A7) until evidence of twisting dissipates.



A7 – Eyeball down length of cord and remove twists if visible.

Repeat this procedure for the second cord. Once any twisting effects have been removed from the cords simply walk back to the Raptor unit allowing the cords to automatically retract into the unit and start the Stow procedure to remove the unit from its mounting surface and pack it up for travel.

UNMOUNTING THE RAPTOR UNIT

Upon finishing training and completing the Cord Maintenance procedure the Raptor unit can be stowed if desired. The Stowing procedure is carried out in the exact reverse order as the Deployment procedure was carried out.

Step 1: Referencing photo A8 and A9, detach both movable pulley assemblies from the structure they are attached to and connect the two caliper spring clips together (clips used to physically connect cords to harnesses on the athlete).



A8 – Disconnect Movable Pulley Assemblies



A9 – Connect Caliper Clips together

Step 2: Alternately extract each cord from the cam cleats on opposing ends of the Raptor unit until the two connect caliper clips are centered in the middle of the unit as shown in photo A10.



A10 – Center Connected Caliper Clips by Alternately Extracting Cords

VERTIMAX RAPTOR USERS MANUAL

Step 3: Irrespective of whether the Raptor unit is mounted in the horizontal or vertical position, the lower left (photos A11 and A12) and right attachment straps (closest to the ground) are always disconnected first leaving the two highest strap connections intact.



A11 – Detach Lower Left Strap



A12 – Detach Lower Right Strap

Next detach the upper left or right strap while firmly holding the carrying handle on the top side of the Raptor unit (Photo A13). After detaching the first of the two topside attachment straps allow the unit to slowly rotate downward while holding the carrying handle (Photo A14). Once the unit is hanging by the last strap lift up the unit with the carrying handle so the strap goes slack and unsnap the last strap from the support structure.



A13 – Detach 1st of 2 Top Straps



A14 – Lower Raptor and Detach Last Strap

After the last strap has been detached remove the Raptor from the support surface and lay it on a flat, non-abrasive surface and begin the Cord and Strap Stow Procedure outlined in the next section to put the Raptor in its travel configuration.

RAPTOR CORD & STRAP STOW PROCEDURE

Once the Raptor unit has been removed from the support structure from which it was attached the Raptor should be configured to its Travel Configuration using the procedure below.

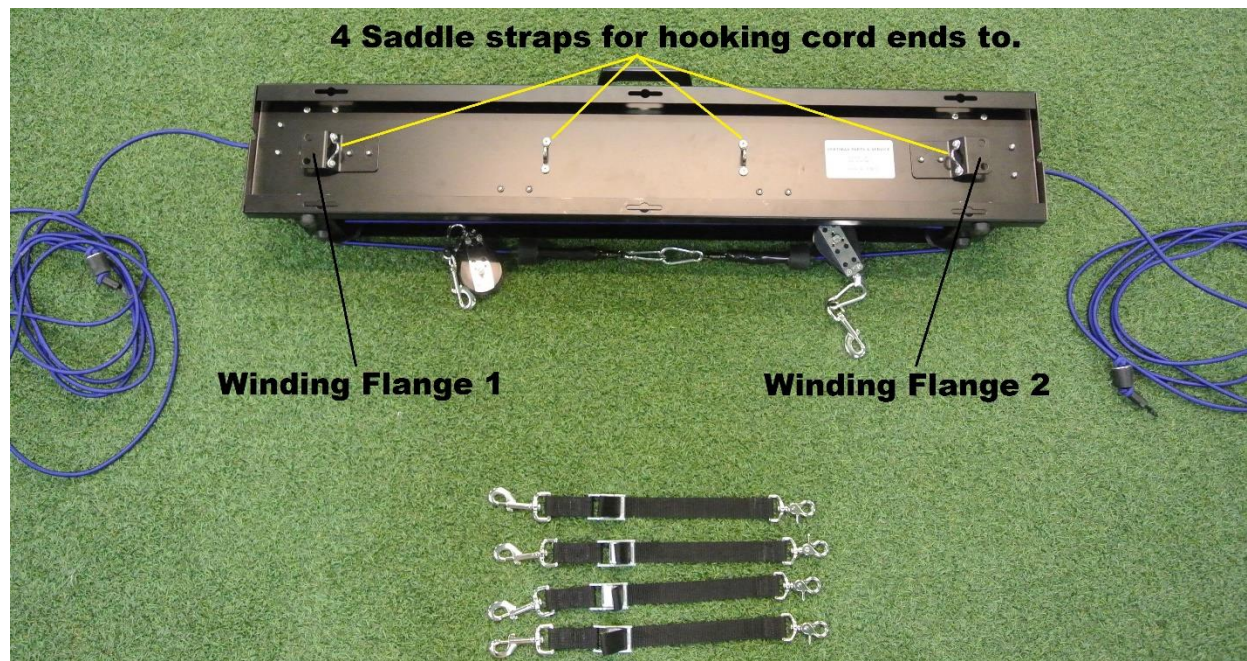
Step 1 – Lay the Raptor unit on a flat non-abrasive surface (A15) and sequentially remove each of the four attachment straps by opening the trigger snap and releasing the straps from each of the four saddle straps (A16) in the four corners of the Raptor unit. Set the four straps to the side of the unit and flip the unit over so the front side cover faces downward exposing the back side of the Raptor unit (A17).



A15 – Lay Raptor Unit on Non-Abrasive Surface



A16 – Remove All 4 Straps



A17 – Flip Raptor Unit Over To Expose Backside Storage Panel

Step 2 – Referencing photos A17 – A21, Guide the left cord through its recessed guide (A18) and wrap it around Winding Flange 1 and 2 until the end of the cord cannot reach and wrap around another winding

VERTIMAX RAPTOR USERS MANUAL

flange (A19 – A20). Stretch the cord until it reaches the nearest of the four saddle straps and hook the end of the cord to the strap A21. Repeat this procedure for the right hand cord. When complete the unit should appear as it does in Photo A22.



A18 – Lay cord through recessed guide.



A19 – Wrap cord around both winding flanges.



A20 – Wrap cord multiple times around flanges until cord cannot reach next flange.



A21 – Stretch and hook cord end to one of the four nearest saddle straps



A22 – Raptor rear side storage panel after both cords have been stowed.

VERTIMAX RAPTOR USERS MANUAL

Step 3 – Referencing A22 – A26, attach the tail end of two anchor straps to Anchor Strap Attachment Point 1 and the remaining two anchor strap tail ends to Anchor Strap Attachment Point 2 (A23). Next depress the spring cam on each anchor strap and elongate all four anchor straps to maximum length. Next connect the spring clips together of each opposing pair of anchor straps at the center of the unit (A24). Once all four straps are connect together pull each strap's adjustment strap tight (A25 - A26).



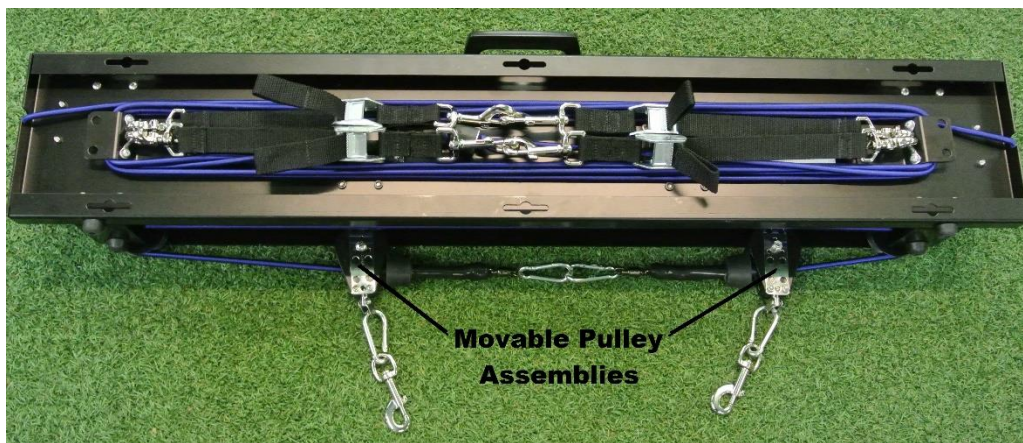
A23 – Attach all 4 anchor straps to saddles



A24 – Connect spring clips of each strap in center of unit.



A25 – Pull all four adjustment straps tight.



A26 – Backside Storage Panel after stowing cords and four anchor straps.

VERTIMAX RAPTOR USERS MANUAL

Step 3 – The final step for configuring the Raptor to the stowed Travel configuration is placing the Movable Pulley Assemblies (reference photo A26) inside the Raptor unit to protect the pulley assemblies when transporting the unit. First turn the unit over from the photo A26 position to the photo A27 position.



A27 – Turn Raptor unit over with backside storage panel facing down.

With your right hand grab the right side Movable Pulley Assembly's spring clip and with your left hand reach under both Caliper Clips and grab the first four rows of elastic bands you encounter. Pull them toward you to expose the internal saddle strap (A28). Attach the right Movable Pulley Assembly's spring clip to the saddle strap. Repeat this procedure for the left side Movable Pulley Assembly using opposite hands. When complete both spring clips should be fastened inside the unit as shown in (A29).



A29 – Both Movable Pulley Assembly's Spring Clips attached to saddle straps inside Raptor unit.

Lastly, place both Movable Pulley Assemblies behind the first row of four elastic bands and position the Movable Pulley Assemblies so that they wedge behind the elastic bands (A30) and do not fall out when the unit is stood upright on it's four rubber stand-offs (A31). The Raptor unit is now in its travel configuration.

VERTIMAX RAPTOR USERS MANUAL

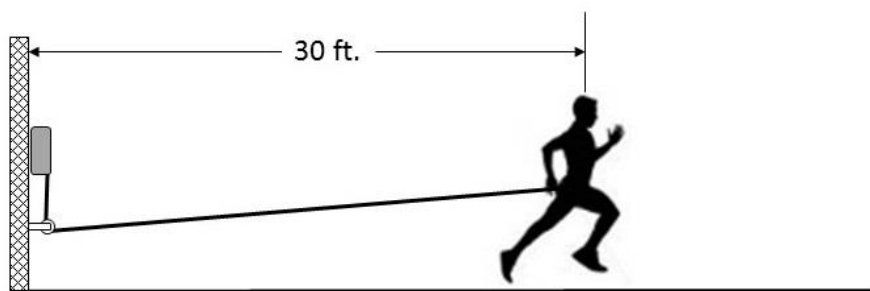


A30 – Moveable Pulley Assemblies tucked behind elastic bands in power module when fully stowed.



A31 – Raptor unit now stowed in its Travel configuration.

SAFETY PRECAUTIONS (HARNESS USAGE vs DISTANCE)



When a user trains within 30 feet of the Raptor unit, all band attachment harness accessories with the exception of the hand grips can be utilized by the athlete to connect Raptor bands and exercise. The following 5 photos show all accessory items that can be used within 30 feet of the Raptor unit.

VERTIMAX RAPTOR USERS MANUAL



360 Degree Waist Harness



Waist Harness With Pads



Ankle Straps



Hip Flexor Harness

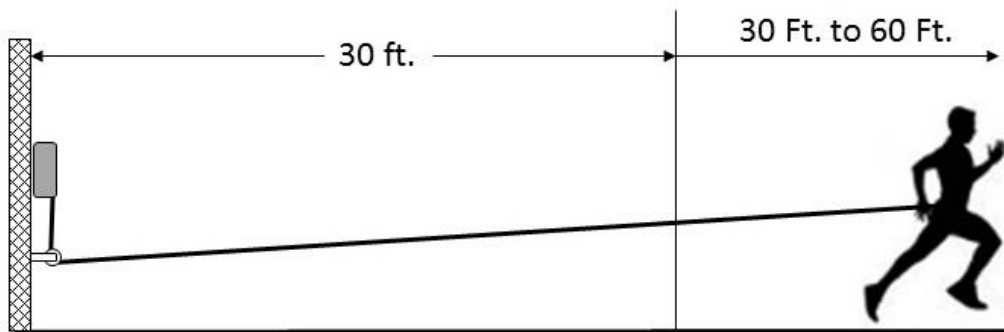


Palm Straps

The hand grips shown to the right **must never be used more than 10 feet** from the Raptor unit since there are no safety straps keeping the hand grips attached to the user's hands. The integrity of the attachment relies solely on the user's grip and thus for safety reasons, the user must never utilize a hand grip more than 10 feet from any Raptor unit



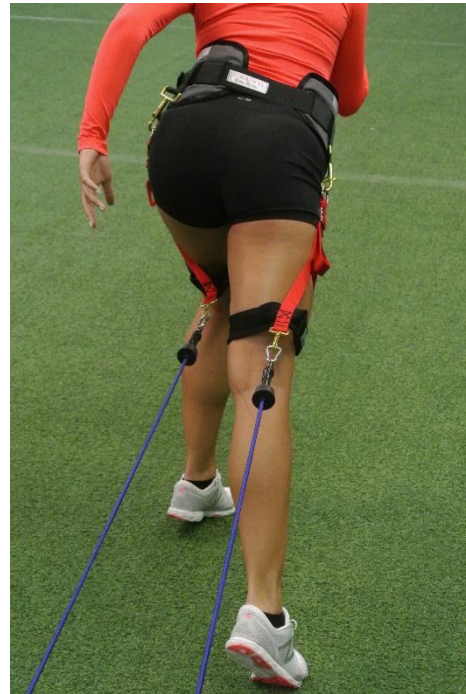
If the Trainee performs any exercise that exceeds the 30 foot distance from a Raptor unit with resistance bands attached, then the Trainee must wear either the 360 Degree Waist Harness (A32) or combination of Waist Harness with Pads and Hip Flexors (A33) as shown on the following page. The 360 Degree belt and Waist belt + Hip Flexor harness configuration greatly reduce the possibility of an accidental cord detachment.



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(A32) At 30+ feet use 360 Degree Belt

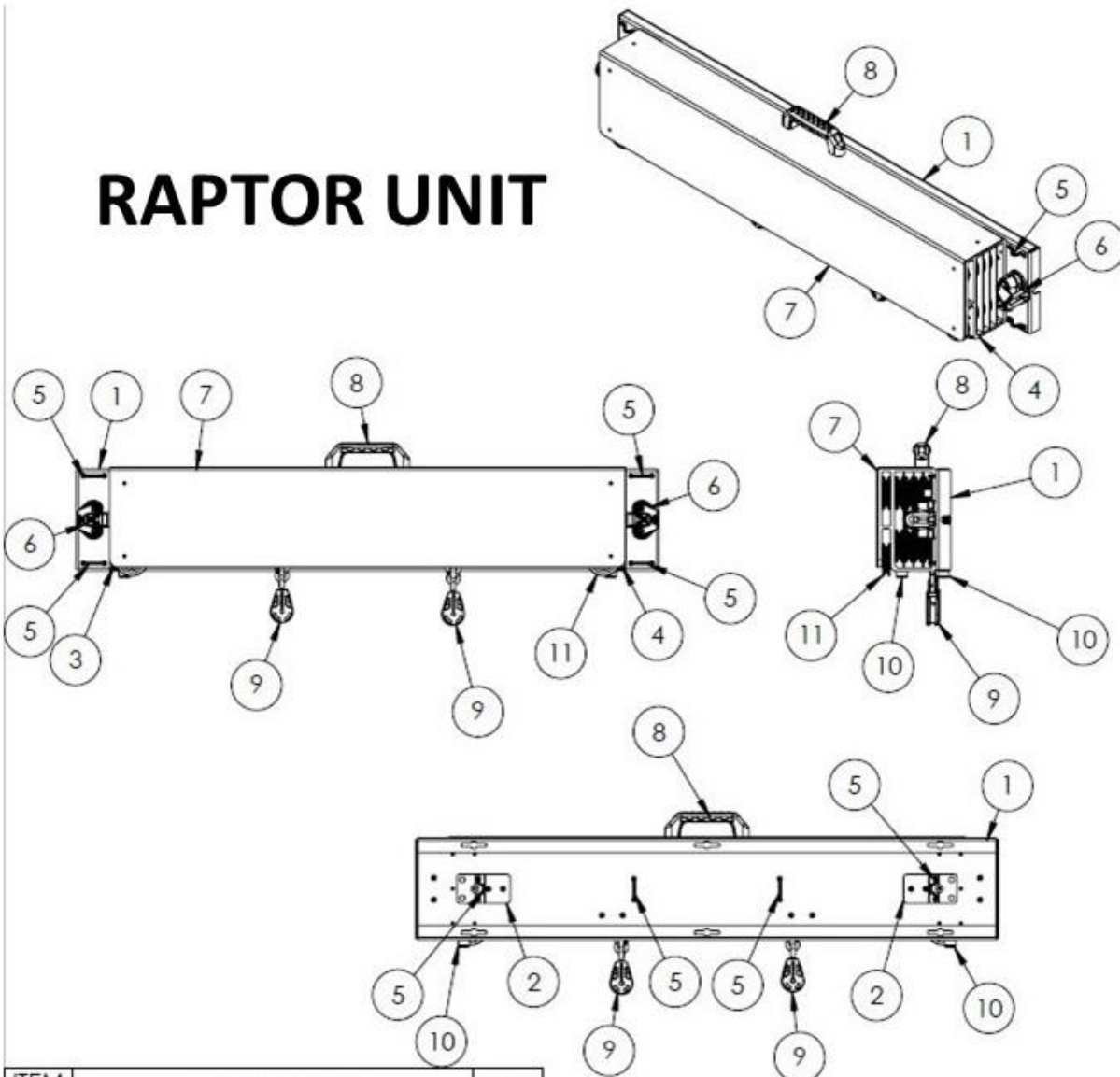


(A33) Or use combo Waist Harness & Hip Flexors

RAPTOR & RAPTOR EX SCHEMATICS

The following schematics of the Raptor and Raptor EX models are provided to help with parts identification and ordering of replacement parts when necessary. Please take time to review the parts of the specific Raptor unit you own so that in the case of need of a replacement part, you will be able to easily identify the part and order it.

RAPTOR UNIT



ITEM NO.	PART NUMBER	QTY.
1	Raptor Base Plate	1
2	Left & Right Cord Stow Bracket	2
3	Left Pulley Housing	1
4	Right Pulley Housing	1
5	Saddle Strap	10
6	Left and Right Side Cam Cleat	2
7	Raptor Support Cover	1
8	Carry Handle	1
9	Left & Right Detachable Pulley Assembly	2
10	Rubber Support Leg	4
11	Left & Right Exit Pulley	2

PROPRIETARY AND CONFIDENTIAL

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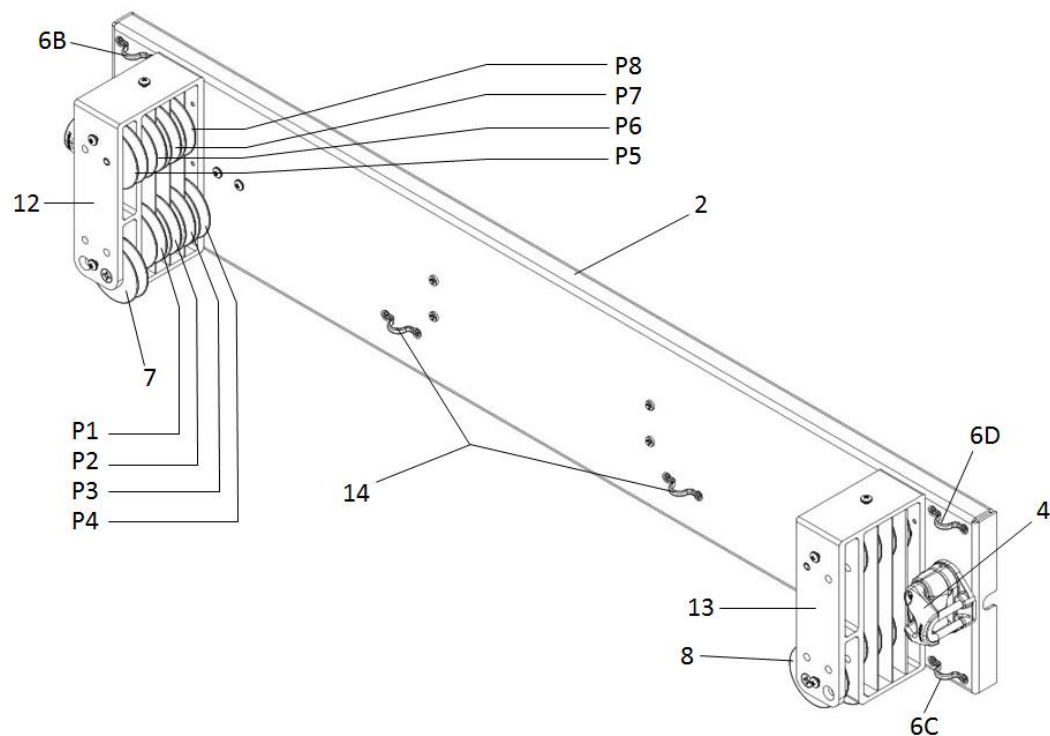
VERTIMAX

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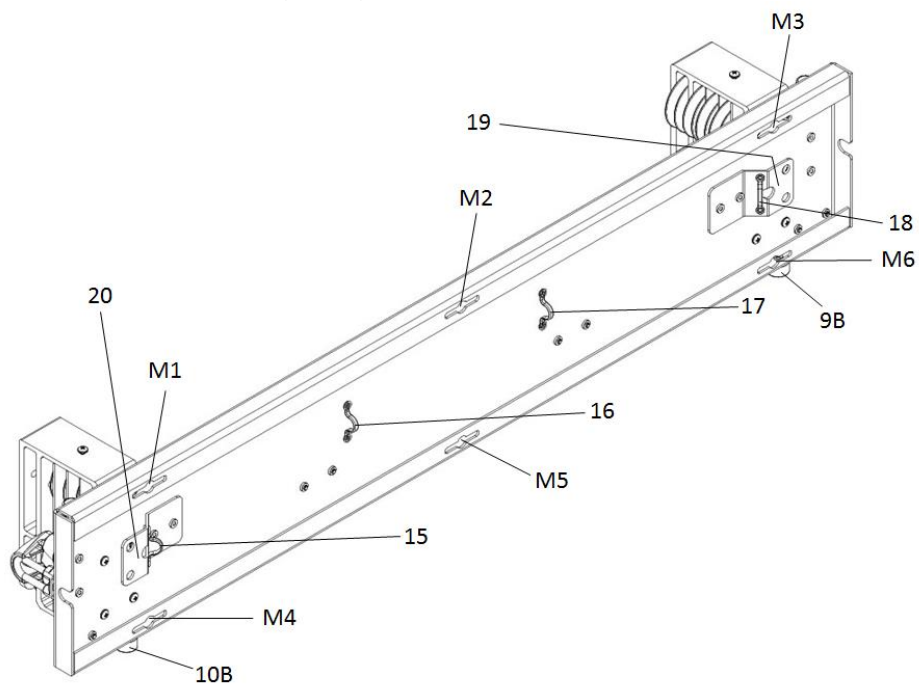
Model: Raptor Assembly
SCALE: 1:10 Drawn By: K. Harren Date: 5/19/15 SHEET 1 OF 1

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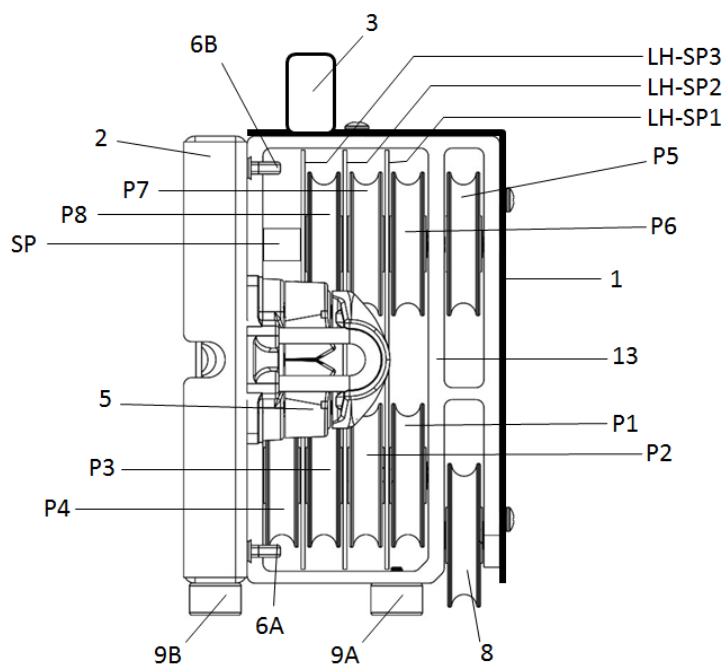
Raptor Unit Front View (45 Degree Angle – Cover & Resistance Bands Removed)



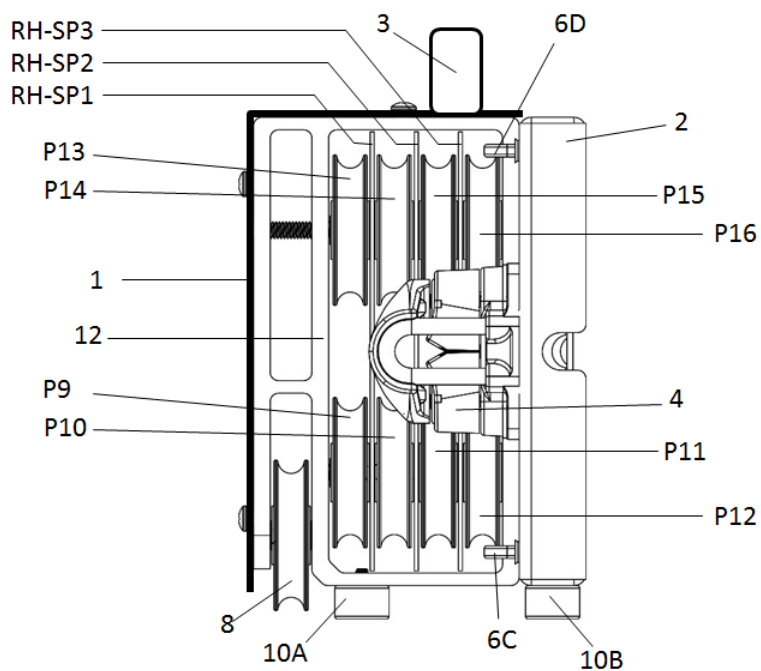
Raptor Unit Rear View (45 Deg. Angle – Cover & Resistance Bands Removed)

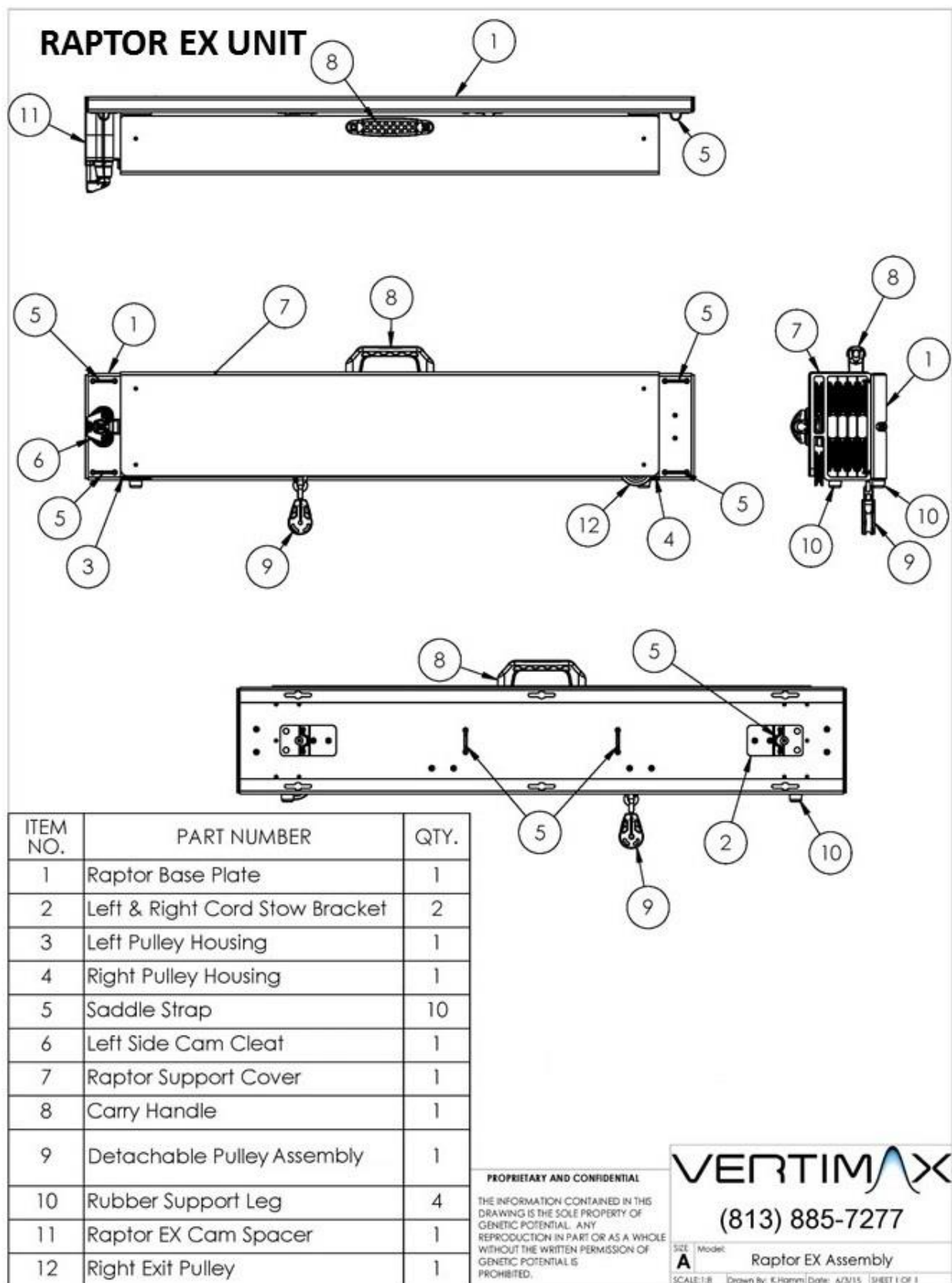


Raptor Unit Left Side View (Resistance Bands Removed)



Right Side View (Resistance Bands Removed)





TRAINING

General Recommendations for Raptor Training

Repetition Ranges, Rest periods and volume of sets performed for Drills or Exercises for improving the respective Performance Modalities below (Per Set or Drill).

Training Category	Repetitions	Rest (seconds)	Sets
Youth Speed	5 - 10 Reps	45 - 60	N/A
Youth Power	10 - 15 Reps	45 - 60	3 - 5
Youth Sports Skill	10 - 15 Reps	45 - 60	3 - 5
Youth Strength	10 - 20 Reps	45 - 60	3 - 5
Strength	6 - 12 Reps	30 - 60	3 - 5
Strength Endurance	15 - 20 Reps	45 - 90	3 - 5
Power	4 - 10 Reps	30 - 60	3 - 5
Power Endurance	12 - 15 Reps	45 - 90	3 - 5
Peak Speed	3 - 10 Reps	30 - 60	N/A
Peak Sports Skill	3 - 10 Reps	30 - 60	3 - 5
Speed Endurance	8 - 20 Reps	45 - 90	N/A
Sports Skill Endurance	12 - 20 Reps	45 - 90	3 - 10

Unloaded (Contrast) Sets

Unloaded or Contrast Sets are performed by removing the VertiMax resistance and performing the same drill for the same or similar number of repetitions without any load.

Contrast Progression per Phase (Phase is a weekly or monthly duration of training in the respective training cycle (microcycle))

First Phase of Training - No Contrast sets

Second Phase of Training - Add additional set or 2 of training which includes a Contrast set/s

Third Phase of Training - Unload or perform a Contrast set every other set of Raptor Training.

Lunge to High Knee Drive

Raptor Strength and Power Training

Benefit:

- Improve Triple extension (Drive) and Hip (Recovery) strength for sprint and sports-Specific movement
- Teach athletes to achieve proper hip level knee height in sprint mechanics.



General Drill Instructions:

- Start drill facing away from the raptor approximately 7-10 feet away
- Start in the bottom of a lunge position
- Finish standing tall with knee raised to hip level in front
- Band origins on fence or wall at height of attachment
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Hip Flexor
- Waist and ankle
- Waist and Hip flexor

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Intensity Progressions: (Band Resistance Increase)

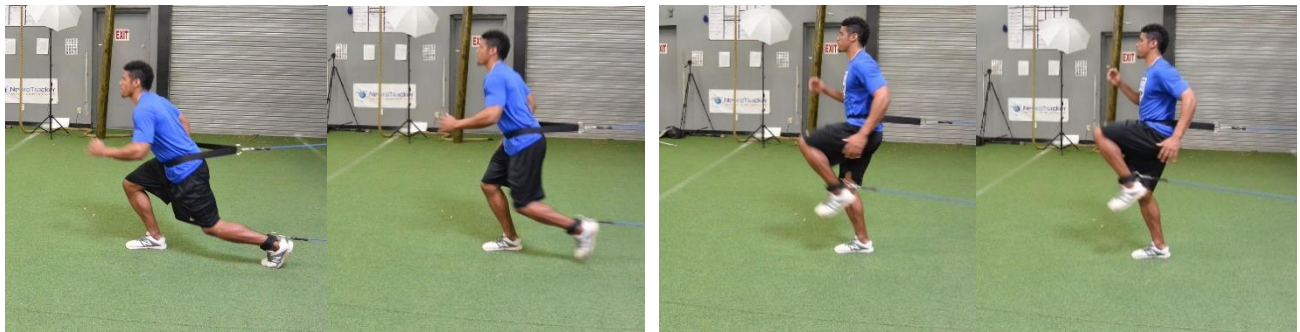
- One attachment location
- Two attachment locations

Drill Performance Cues:

- Head level
- Chest up
- Knees over toes (do not let knees bend inward)
- Slow to Moderate leg push up rep speed for Strength
- Rapid leg push up rep speed for Power
- Bring knee to hip level at top
- Maintain balance
- Control at slow to moderate speed on downward movement until landing
- Back leg softly lands behind body on Toe and Ball of foot area.

Raptor Strength and Power Training //

Lunge to High Knee Drive **Waist & Ankle Load**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lunge to High Knee Drive **Waist Load**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lunge to High Knee Drive **Hip Flexor Load**



Harness Attachment Position



Broad (Long) Jumps

Raptor Strength and Power Training

Benefit:

- Improve long jump
- triple extension explosive power for sprinting and sports-specific movement
- Improve deceleration strength and mechanics
- Ground reaction response for sprinting and sports-specific movement



General Drill Instructions:

- Start drill facing away from the raptor approximately 7-10 feet away
- Start in an athletic standing position with arms overhead
- Explosively drive out of squat after countermovement while slightly falling forward
- Finish by landing in a squat position
- Band origins on fence or wall at height of attachment.
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Ankles
- Hip Flexor

Intensities Progression: (Drill Performance Level)

Starting Position:

- 2 leg
- 1 leg

Single Response:

- Hold landing for 2-5 count
- Starting Position:
 - Return to starting position
 - Jump from landing location after hold
 -
- Repetitive - no hold of landing (only on drills starting with 2 legs)

Band Resistance Increase:

- 1 location
- 2 locations (multiple Raptors)

Drill Performances Cues:

- Counter movement down
- Swing arms down and back
- Push Hips back
- Head Level
- Chest Up
- Knees over toes (do not let knees bend inward)
- Explode out
- Max Effort
- Initiate force as quickly as possible
- Control into landing with hips back
- Keep knees behind end of foot finishing in a squatting position
- Immediately explode out for next rep under cues above without countermovement because landing functions as countermovement

VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Broad (Long) Jump **Ankle Load**



Harness Attachment Position

VERTIMAX RAPTOR USERS MANUAL



Raptor Strength and Power Training // Broad (Long) Jump **Waist Load**



Harness Attachment Position

VERTIMAX RAPTOR USERS MANUAL



Raptor Strength and Power Training // Broad (Long) Jump **Hip Flexor Load**



Harness Attachment Position

VERTIMAX RAPTOR USERS MANUAL



Raptor Strength and Power Training //

Video: Broad Jump (Ankle Loading)



<https://www.youtube.com/watch?v=mdKjxoOgQbl>

Lateral Bound Jumps

Raptor Strength and Power Training

Benefit:

- Improve lateral power development
- Improve lateral triple extension explosive power for lateral movement and sport-specific movement
- Improve lateral deceleration strength and mechanics



General Drill Instructions:

- Start drill with one side of the body facing the Raptor
- Should be positioned about 7-10 feet away from the raptor
- Start in the 2 leg athletic position
- If 2 leg, countermove down into a $\frac{1}{4}$ squat and explode out laterally
- If 1 Leg drill, Lift the 1 leg farthest from the Raptor
- Countermove this leg in towards the inside leg and explode out
- Jumping with the outside leg as far as possible
- Finish in a $\frac{1}{4}$ squat position on 2 legs or 1 leg the farthest from the Raptor
- For repetitive progression, Explode back to original position upon landing with controlled but minimal contact time.
- Band origins on fence or wall at height of attachment
- See Drill performance cues below for maximizing your results from this drill.

Load Options: (Attachments Progression)

- Waist (2 Leg, 1 Leg)
- Ankles (2 Leg, 1 Leg)
- Hip Flexor (1 Leg)
- Waist and ankle (2 Leg, 1 Leg)
- Waist and hip Flexor

Intensities Progression: (Band Resistance Increase)

- Drill Performance Level
 - Starting Position
 - 2 leg
 - 1 leg
 - Landing position
 - 2 leg
 - 1 leg
 - Single Response
 - Hold landing for 2-5 count
 - Hold count progression
- Repetitive – no hold of landing
- Band Resistance Increase
 - One attachment location
 - Two Attachment locations

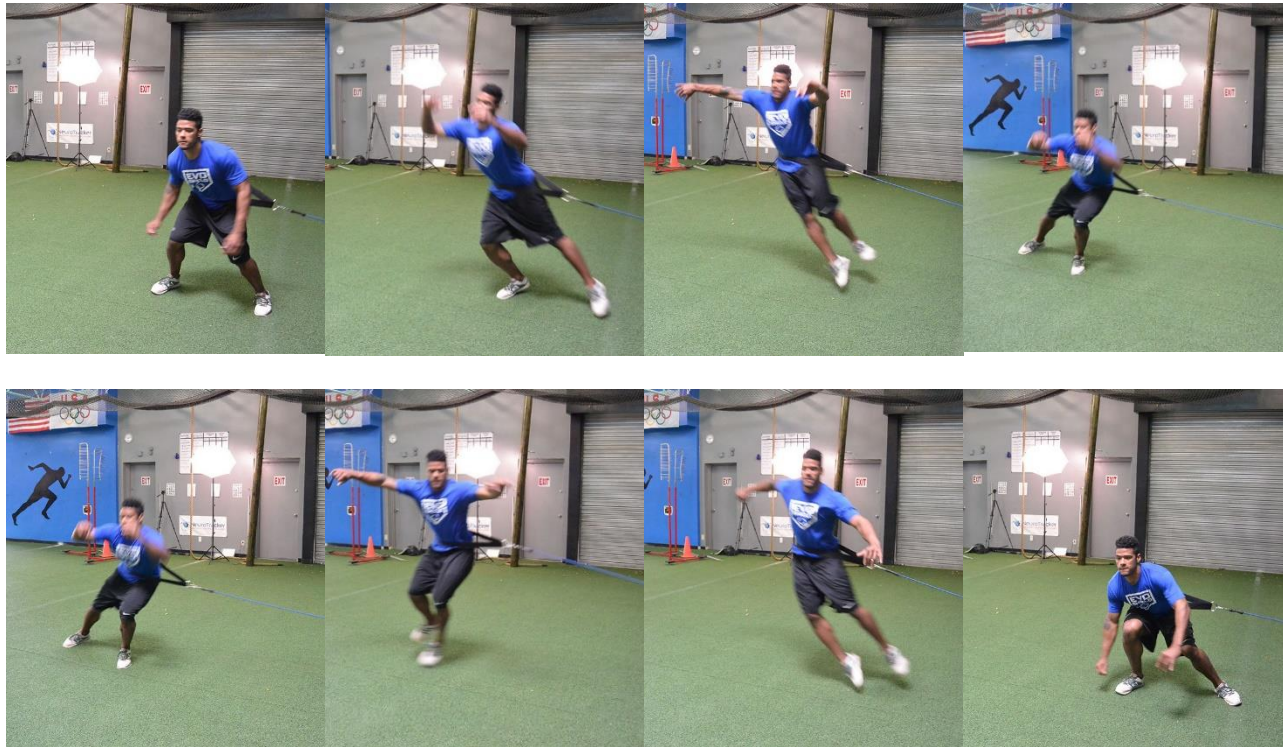
Drill Performance Cues: (Attachments Progression)

- Counter movement down
 - Push Hips back
 - Moderate lean forward
- Head level
- Chest up
- Knees over toes (do not let knees bend inward)
- Laterally Explode out
- Max Effort
- Initiate force as quickly as possible
- Control into landing with hips back
- Keep knees behind end of foot

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Raptor Strength and Power Training //

Lateral Bound (Jumps) Waist Loading (2 Leg)



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lateral Bound (Jumps) **Waist & Ankle Loading (1 Leg)**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lateral Bound (Jumps) **Waist Loading (1 Leg)**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lateral Bound (Jumps) Ankle Loading (Near Side)



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lateral Bound (Jumps) Ankle Loading (Far Side)



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Lateral Bound (Jumps) **Hip Flexor Loading**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Video: Lateral Bound (Jumps)



<https://www.youtube.com/watch?v=Ol4gFl6G8Rg>

Arm Swings

Raptor Speed Training

Benefit:

- Improve arms swing speed for sprinting
- Improve arm swing sprint mechanics for improved speed in sprinting



General Drill Instructions:

- Start drill facing away or towards from the raptor approximately 3-5 feet away
- Start with 1 arm in front and 1 arm in back
- Finish standing tall with knee raised to hip level in front
- Band origins on fence or wall at height of attachment
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Palm Straps

Intensities Progression: (Band Resistance Increase)

- Facing away
 - Seated
 - Standing
- Facing towards
 - Seated
 - Standing

Drill Performance Cues:

- Head level
- Chest up
- Legs straight out in front
- Hands loose
 - Soft fist
 - Thumb to index finger
 - No potato chip break
- Front arm movement
 - Hand to chin
 - Arm at 45 degree angle
- Backward arm movement
 - Hand to just behind hip pocket
 - Elbow at 90 degrees
- Max Effort without losing form

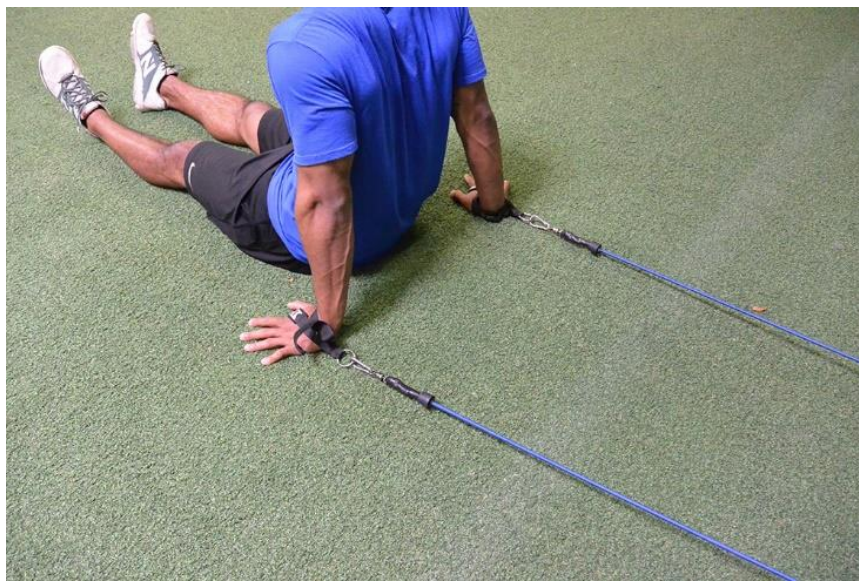
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Raptor Speed Training //

Seated Arm Swing **Facing Away Palm Load**



Harness Attachment Position



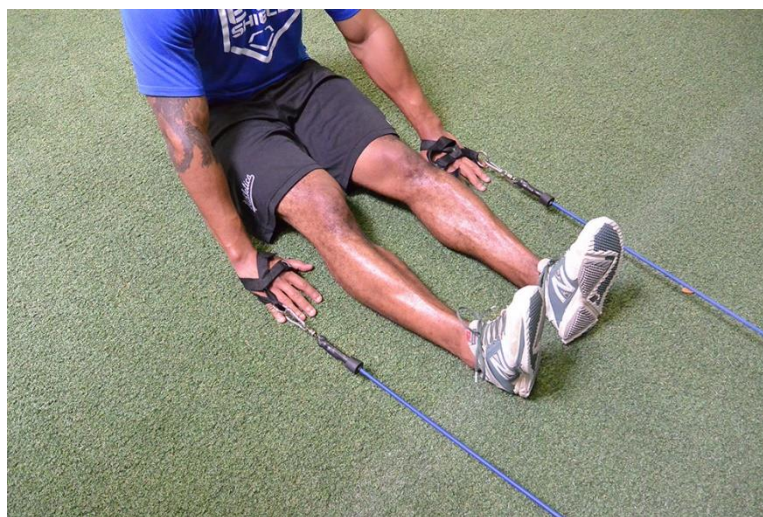
VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Seated Arm Swing Facing toward Palm Load



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Arm Swings (Standing Arm Swing Facing away Palm Load)



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Arm Swings (Standing Arm Swing Facing toward Palm Load)



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Strength and Power Training //

Video: Arm Swing



<https://www.youtube.com/watch?v=ptiuYkQdEDg>

High Knee Drive

Raptor Speed Training

Benefit:

- Improve Triple extension and Knee Flexion power for sprint and sports-Specific movement
- Teach athletes to achieve proper hip level knee height in sprint mechanics.
- Initiate proper mechanics to prevent over-striding (landing in front of your center of mass) (approximate center of mass is center of body at the belly button.)



General Drill Instructions:

- Start drill facing away from the raptor approximately 7-10 feet away
- Lead with one knee pulled to hip and opposite arm moving forward
- Other arm goes back, simultaneously
- Alternate this pattern rapidly following Cues below
- Progress forward to 10 yards
- Band origins on fence or wall at height of attachment
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Ankles
- Hip Flexor

Intensities Progression (Band Resistance Increase)

VERTIMAX RAPTOR USERS MANUAL

Drill Performance Cues:

- Head level
- Chest up
- Sprint mechanics
 - Pull knee to hip height
 - Pull heel to hip
 - Pull toe to shin – (dorsi flex foot)
- Contact ground with only the balls of your feet
- Work Highest speed possible while maintaining sprint mechanics

VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

High Knee Drive **Waist Loaded**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

High Knee Drive **Ankle Loaded**



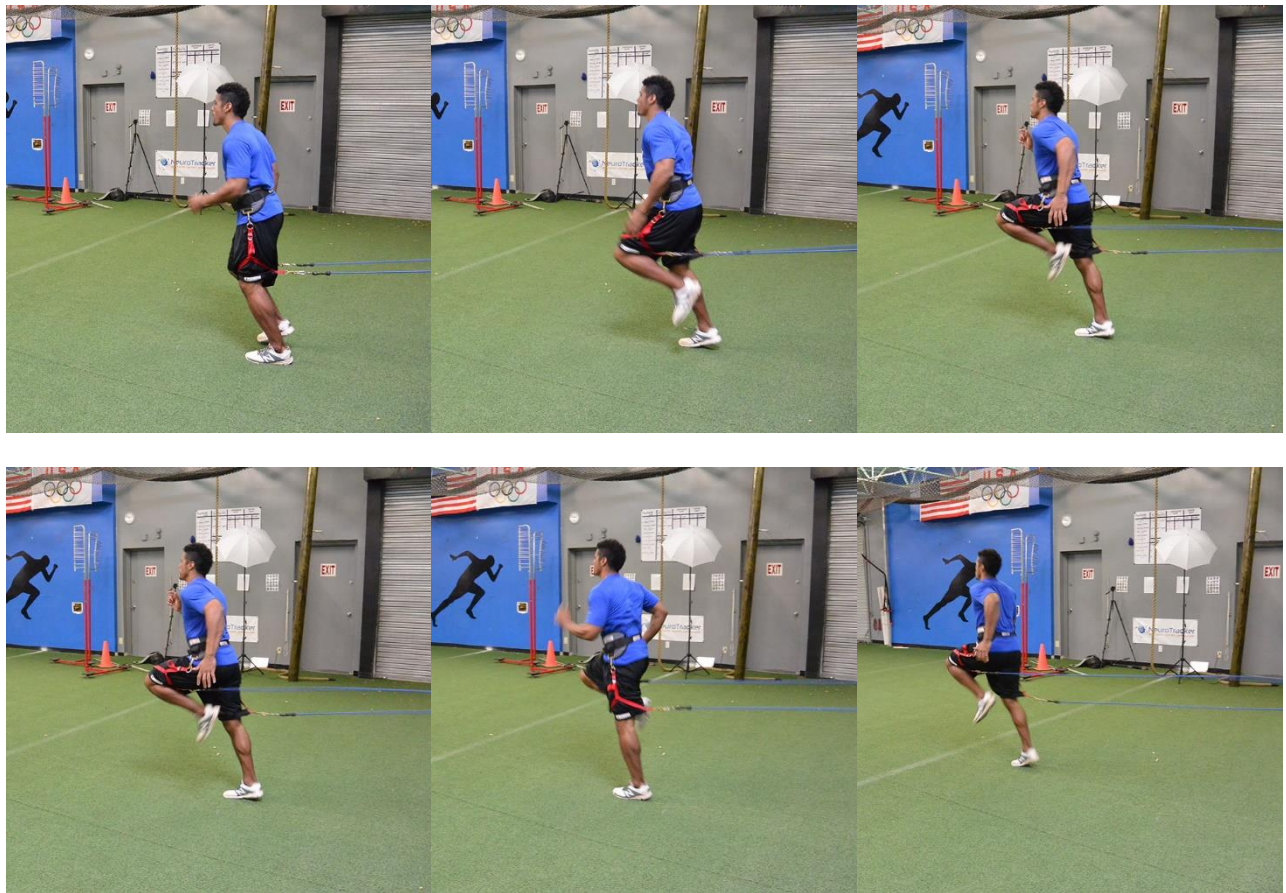
Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

High Knee Drive Hip Flexor



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Video: High Knee Drive



<https://www.youtube.com/watch?v=W75yACWiGY>

10 Yard B Skip

Raptor Speed Training

Benefit:

- Improve Triple extension and Knee Flexion power for sprint and sports-Specific movement
- Teach athletes to achieve proper hip level knee height in sprint mechanics.
- Improve recovery phase sprint mechanics
- Initiate proper mechanics to prevent over striding (landing in front of your center of mass. Approximate center of mass is center of body at the belly button.)



General Drill Instructions:

- Start drill facing away from the Raptor approximately 7-10 feet away
- Lead with one knee pulled to hip and opposite arm moving forward
- Other arm goes back, simultaneously
- Alternate this pattern rapidly following Cues below
- Progress forward to 10 yards
- Band origins on fence or wall at height of attachment
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Ankles
- Hip Flexor

Intensities Progression: (Band Resistance Increase)

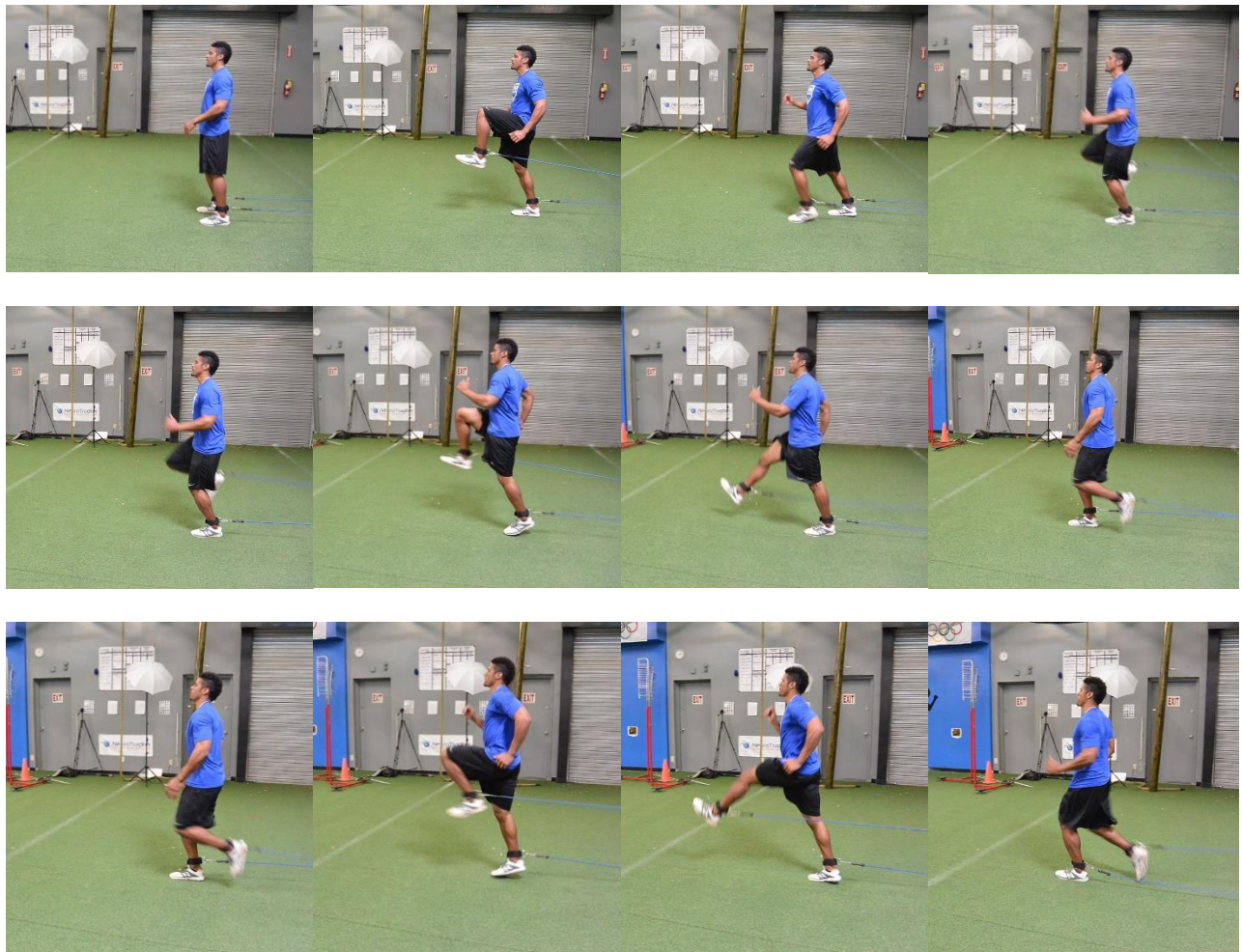
Drill Performance Cues:

- Head level
- Chest up
- Knees over toes
- Sprint mechanics
- Pull knee to hip height
- Pull heel to hip
- Pull toe to shin – (dorsi flex foot)
- Pull ankle over knee
- Drive foot to ground under hip
- Explosively Pull leg and foot down and back against ground (Dorsiflex ankle) (claw)
- Maintain Highest speed while maintaining sprint mechanics

VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard B Skip Ankle Load



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard B Skip Hip Flexor Load



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard B Skip **Waist Load**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Video: 10 yard B Skip Ankle Load



<https://www.youtube.com/watch?v=FzIxpKjlr1g>

20 Yard Pop-up Ground Start

Raptor Speed Training

Benefit:

- Improve Triple extension and Knee Flexion power for sprint and sports-Specific movement
- Teach athlete the proper body lean necessary for the fastest start and transition phase of the sprint
- Teach athletes to accelerate with more power
- Improve stride rate and stride length
- Teaches athlete achieve proper hip level knee height in sprint mechanics when using the resistance on the hip flexor.
- Initiate proper mechanics to prevent over-striding (landing in front of your center of mass) (approximate center of mass is center of body at the belly button.)
- Teaches athlete to strike the ground under the body from the resistance on the hip flexor



General Drill Instructions:

- Start drill facing away from the Raptor approximately 15 to 20 feet away and Raptor Core fully extended.
- Have Chest on the ground, body flat with legs extended behind the body.
- Perform rapid push-up and pulling one leg knee up
- Progress forward sprinting 20 yards
- Band origins on fence or wall at height of attachment
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Ankles (10 yard distance only)
- Hip Flexor

Intensities Progression: (Band Resistance Increase)

Drill Performance Cues:

- Head level
- Chest up
- Knees over toes
- Initial Body lean near 45 degrees
- Gradually allow body lean to reduce over the 20 yard distance.
- Approximately 10-20 degree lean at 20 yards
- No bend at the hip
- Full extension at the end of the triple extension drive phase
- Sprint Start mechanics
 - Pull knee to hip height
 - Pull heel to hip
 - Pull toe to shin – (dorsi flex foot)
- Transition Sprint mechanics
 - Pull ankle over knee
 - Drive foot to ground under hip
 - Explosively Pull leg and foot down and back against ground (Dorsiflex ankle) (claw)
- Strike the ground under or behind the belly button (center of mass)
- Maintain Highest speed while maintaining sprint mechanics

VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

20 yard Pop-up Ground Start **Waist Load**



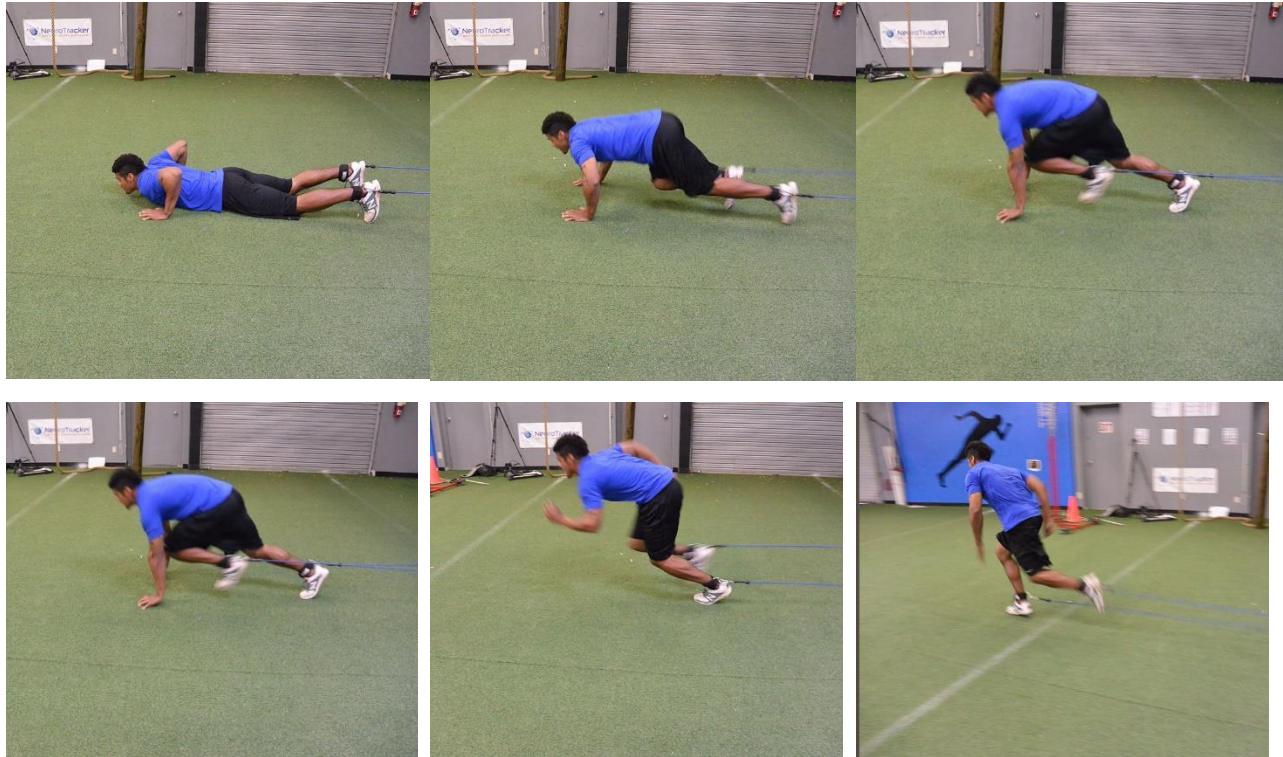
Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard Pop-up Ground Start **Ankle Load**



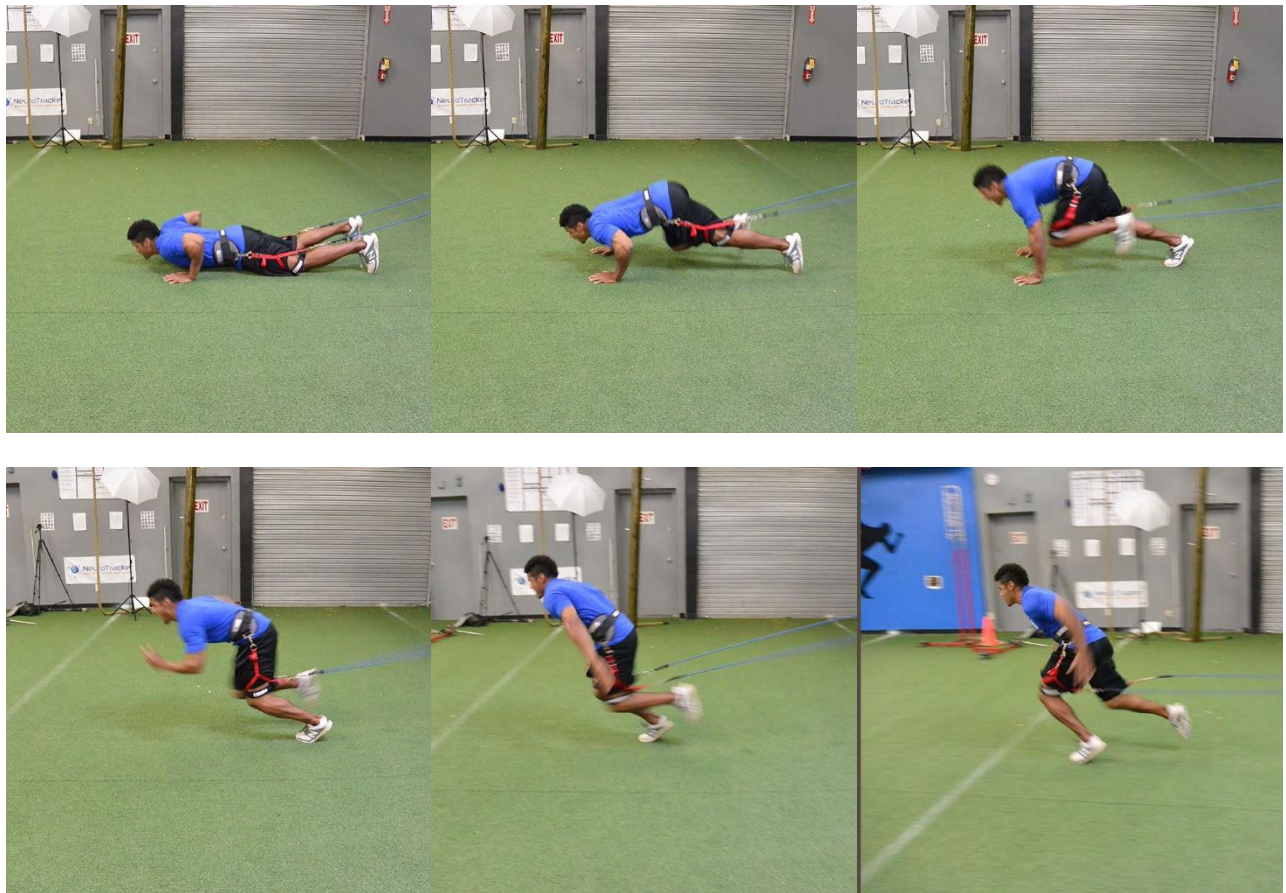
Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

20 yard Pop-up Ground Start **Hip Flexor Load**



Harness Attachment Position



Raptor Speed Training //

Video: 10 yard Pop-up Ground Start Ankle Load



<https://www.youtube.com/watch?v=QDAnOdJh4GA>

10 Yard Falling Start

Raptor Speed Training

Benefit:

- Improve Triple extension and Knee Flexion power for sprint and sports-Specific movement
- Teach athlete the proper body lean necessary for the fastest start and transition phase of the sprint.
- Improve stride rate and stride length
- Teach athletes to accelerate with more power
- Initiate proper mechanics to prevent over-striding (landing in front of your center of mass) (approximate center of mass is center of body at the belly button.)
- Teaches athlete achieve proper hip level knee height in sprint mechanics when using the resistance on the hip flexor.
- Teaches athlete to strike the ground under the body from the resistance on the hip flexor



General Drill Instructions:

- Start drill facing away from the Raptor approximately 15 to 20 feet away and Raptor Core fully extended.
- Stand tall with arms extended at your sides and rise up on the balls of your feet.
- Fall forward with body completely straight and pull 1 leg forward to begin running at the last moment to prevent falling.
- Progress forward sprinting 10 yards and while maintaining your body lean
- Band origins on fence or wall at height of attachment
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Ankles
- Hip Flexor

Intensities Progression: (Band Resistance Increase)

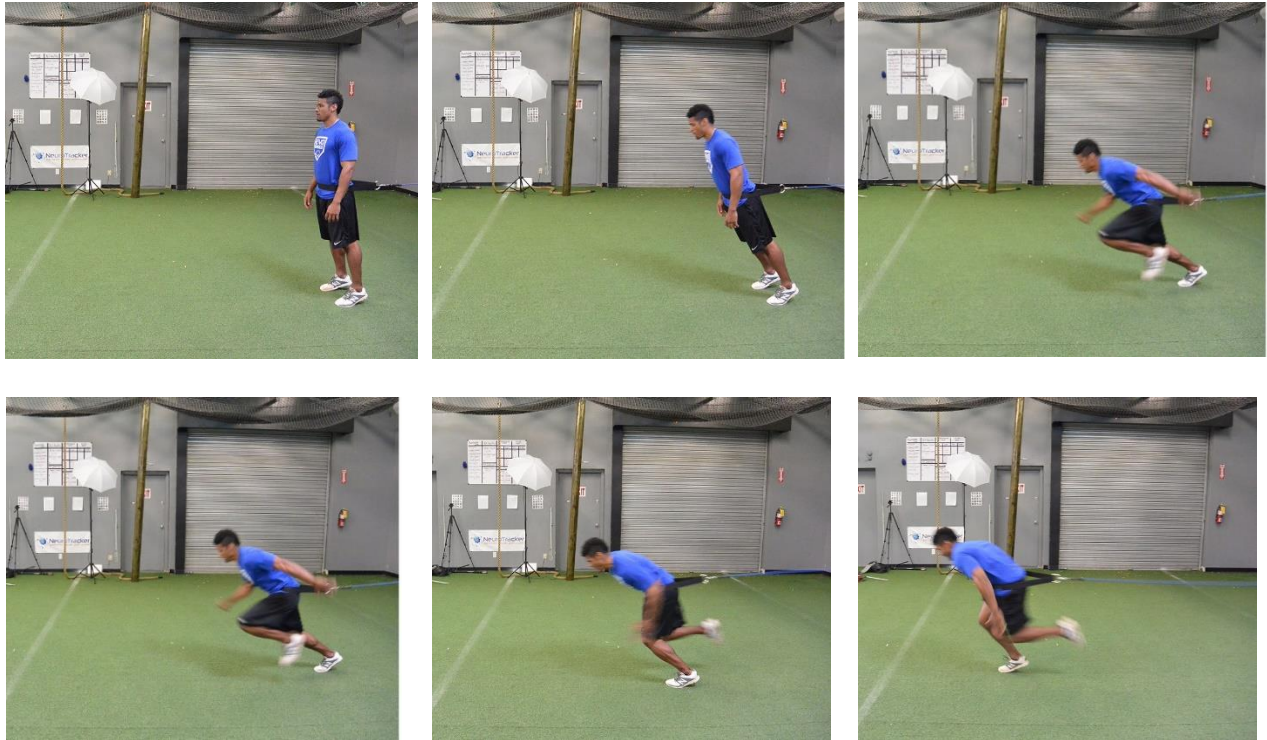
Drill Performance Cues:

- Head level
- Chest up
- Knees over toes
- Initial Body lean near 45 degrees
- No bend at the hip
- Approximately 15-25 degree lean at 10 yards
- Full extension at the end of the triple extension drive phase
- Sprint Start mechanics
- Pull knee to hip height
- Pull heel to hip
- Pull toe to shin – (dorsi flex foot)
- Strike the ground under or behind the belly button (center of mass)
- Maintain Highest speed while maintaining sprint mechanics

VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard Falling Start **Waist Load**



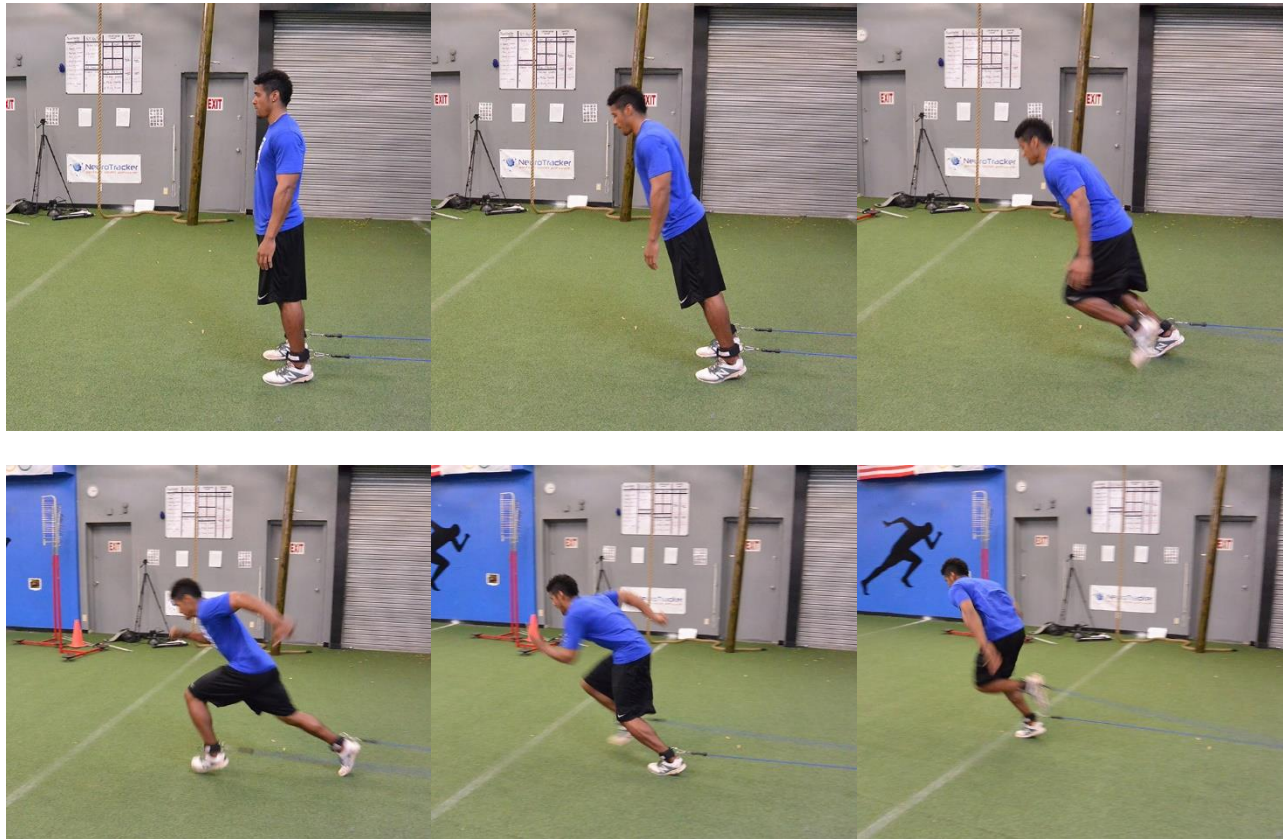
Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard Falling Start **Ankle Load**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Video: 10 yard Falling Start Ankle Load



<https://www.youtube.com/watch?v=QhjFxrNVc7M>

VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 yard Falling Start Hip Flexor Load



Harness Attachment Position



20 Yard Sprint with 3 point Start - Hip Flexor

Raptor Speed Training

Benefit:

- Improve Triple extension and Knee Flexion power for sprint and sports-Specific movement
- Improve stride rate and stride length
- Teach athletes to accelerate with more power
- Teaches athlete achieve proper hip level knee height in sprint mechanics using the resistance on the hip flexor.
- Initiate proper mechanics to prevent over-striding (landing in front of your center of mass) (approximate center of mass is center of body at the belly button.)
- Teaches athlete to strike the ground under the body from the resistance on the hip flexor



General Drill Instructions:

- Start drill facing away from the Raptor approximately 15 to 20 feet away and Raptor Core fully extended.
- Initiate proper 3 point starting position, dominant hand on line, non-dominant arm pulled back in a 90 degree angle (hand in back pocket simulation), non-dominant foot 1 foot length behind the line, Dominant foot at $\frac{3}{4}$ of a foot length behind non-dominant foot but linearly aligned with its respective hip.
- Light pressure on hand and evenly displaced on each foot
- Perform rapid push on both leg simultaneously while pulling dominant arm back to its respective end position while rapidly driving the non-dominant arm forward.
- Progress forward sprinting 20 yards
- Band origins on fence or wall at height of attachment

VERTIMAX RAPTOR USERS MANUAL

- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist
- Hip Flexor
- Ankle

Intensities Progression: (Band Resistance Increase)

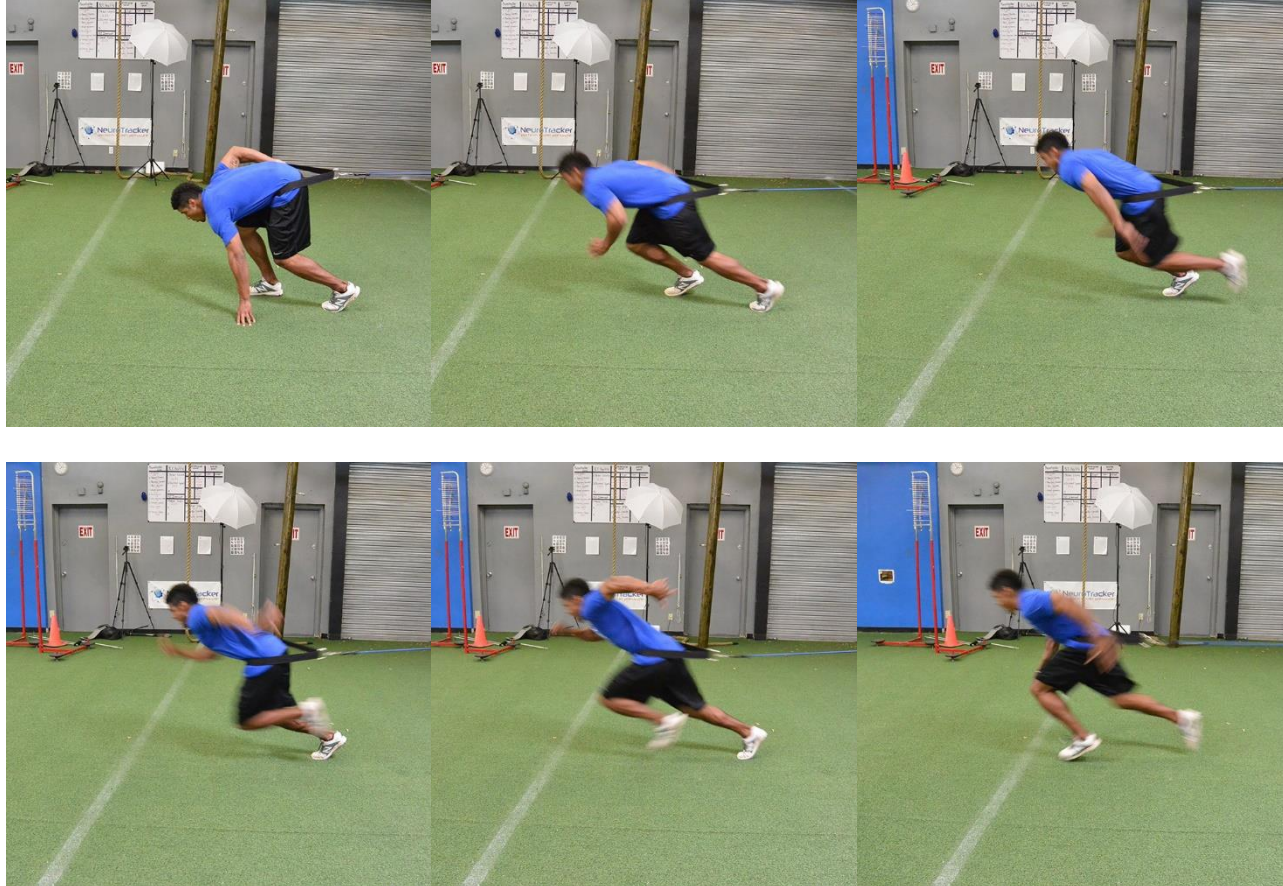
Drill Performance Cues:

- Head level
- Chest up
- Knees over toes
- Initial Body lean near 45 degrees
- Gradually allow body lean to reduce over the 20 yard distance.
- Approximately 10-20 degree lean at 20 yards
- No bend at the hip
- Full extension at the end of the triple extension drive phase
- Sprint Start mechanics
 - Pull knee to hip height
 - Pull heel to hip
 - Pull toe to shin – (dorsi flex foot)
- Transition Sprint mechanics
 - Pull ankle over knee
 - Drive foot to ground under hip
 - Explosively Pull leg and foot down and back against ground (Dorsiflex ankle) (claw)
- Strike the ground under or behind the belly button (center of mass)
- Maintain Highest speed while maintaining sprint mechanics

VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

20 Yard Sprint with 3 Pt Start **Waist Load**



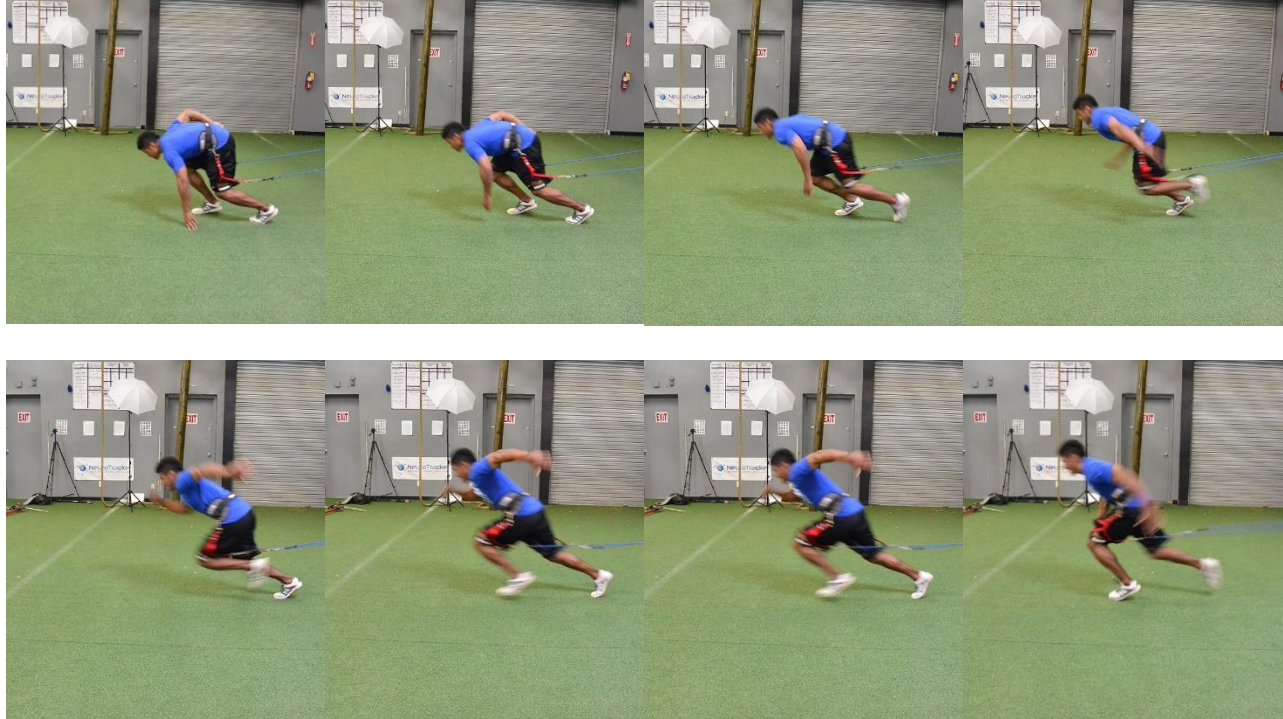
Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

20 Yard Sprint with 3 Pt Start **Hip Flexor Load**



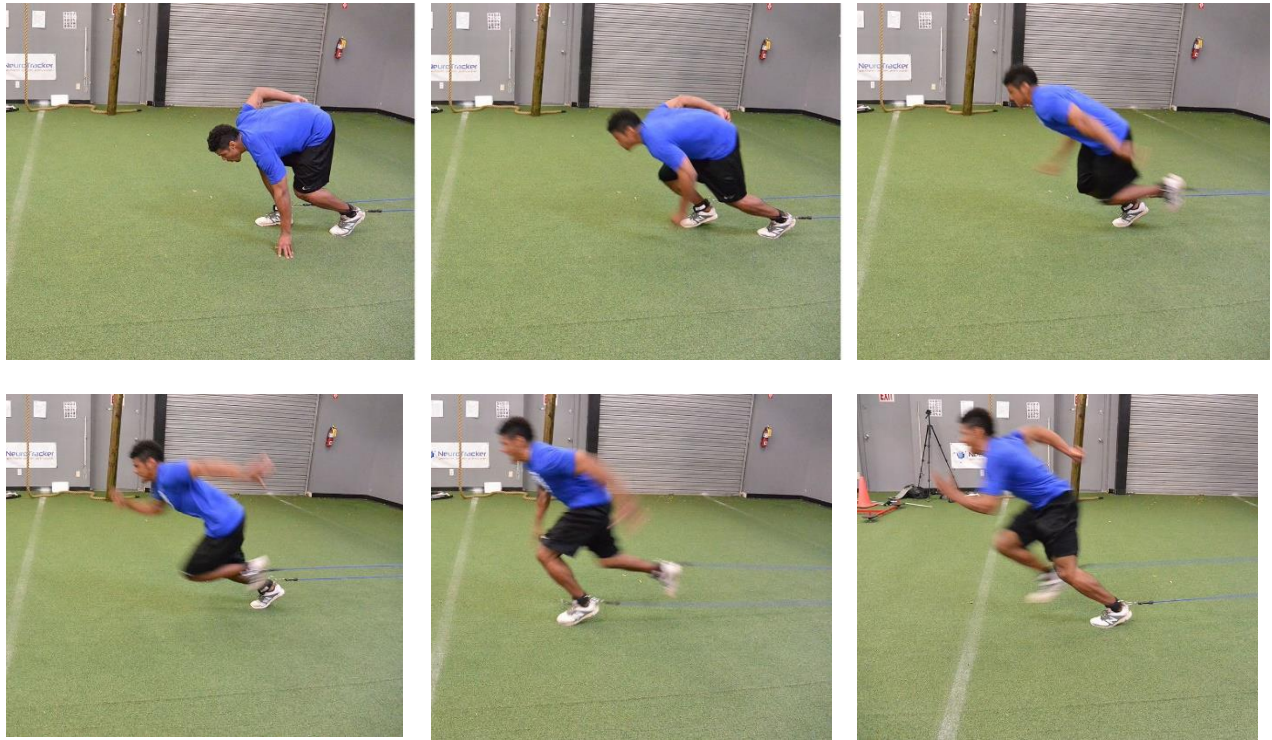
Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

10 Yard Sprint with 3 Pt Start **Ankle Load**



Harness Attachment Position



VERTIMAX RAPTOR USERS MANUAL

Raptor Speed Training //

Video: 10 Yard Sprint with 3 Pt Start Ankle Load



<https://www.youtube.com/watch?v=mlwHmRhioCY>

Lateral Change of Direction

Raptor Change of Direction Training

Benefit:

- Improve lateral deceleration technique
- Improve lateral acceleration off of a change of direction
- Improve speed out of starting position
- Increase stride length and stride rate



General Drill Instructions:

- Start drill facing toward the Raptor in athletic stance at a distance associated with the intensity progression listed below that you are in.
- Out of the Athletic position, sprint to the cone placed in front of the Raptor where there is still tension on the band if you have extended it out
- Control your Sprint, deceleration and turn into the cone maintaining proper mechanics at all times.
- This drill will be performed only with a waist harness
- See the Drill performance cues below for maximizing your results from this drill

Load Options: (Attachments Progression)

- Waist

Intensities Progression: (Starting Distance / Band Resistance Increase)

- 5 yards
- 7 yards
- 10 yards
- 15 yards
- 20 yards

Drill Performance Cues:

- Sprint at the cone
- Sprint Start mechanics
- Pull knee to hip height
- Pull heel to hip
- Pull toe to shin – (dorsi flex foot)
- Sink hips back as you approach the cone
- As you sink hip start to turn the respective side to cone
- Also begin to lean back in the direction and away for the cone that you are turning from
- As you reach the cone keep your weight evenly distributed in each leg with your hips low and back with lean back towards the direction that you want to sprint out of the change of direction.

VERTIMAX RAPTOR USERS MANUAL

Raptor Change of Direction Training //

Lateral Change of Direction Drill **Waist Load**

